VIRGINIA WILDLIFE

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Editor's Note

I never would have made much of a biologist. I like clear-cut answers too much, and I really don't like my beliefs to change on me. I learned this valuable lesson in college, when I was fortunate enough to work on the tail end of a very significant research project that was looking at the effects of a paper mill's discharge on the macrobenthic invertebrate community in the James River. In plain terms, the study was trying to figure out if the discharge from the paper mill was affecting the bugs in the river.

"So what?" you might say. "What's so important about *that*?" Well, biologists by then had figured out that particular bugs, especially some bottom-dwelling bugs living in fast-moving water, are *very* sensitive to changes in their environment. If anything starts to go wrong, nine times out of 10 these bugs are going to kick the bucket first—not the fish or anything else.

By the time I got involved in this fascinating study, nearly all the hard work had been done. Hundreds of samples had been taken before the paper mill began discharging its treated waste into the river and hundreds after—in a tedious process of collection and testing that took several years. Water quality data had been compiled and thousands of mayflies, caddisflies, midges and other bottom-dwelling bugs had been identified.

I came on just in time for the good part—to figure out whether or not the discharge really was affecting the tiny invertebrates. You'd think such an analysis would be a piece of cake. Either your insects went belly up with the discharge or they didn't. It seemed pretty simple to me—until I started looking at the data. None of it fit the black and white scenario. After all, the discharge we were talking about here wasn't of the toxic type that would wipe out a whole aquatic community in one fell swoop. This was treated waste, brown and foamy to be sure, but not a swift and deadly killer by any stretch of the imagination.

Something *did* affect the sensitive insect community as far as we could tell, but what it was and how much the community was affected was another matter. Oh, I'd work up these elaborate analyses, showing how one species went up and the other down and blame it on the discharge, and then get called down for faulty reasoning. "How can you say that?" I would be asked. "Have you thought about this, that, or the other that may have influenced this pattern?"

To tell you the truth, although I did give a small paper on one small facet of the findings, I don't even remember what I concluded. In my mind, it was all a rather unsatisfactory and vague conclusion to a whole lot of field work and study. There didn't seem to be a proper ending to the story.

True biologists, on the other hand, reveled in the study. After all, if there is any one concrete truth a biologist believes in when dealing with living organisms, it's that there isn't any. There are too many variables, too many mysterious interactions taking place in the natural world that we know nothing about for a biologist to presume to "understand it all." All the biologist can hope for is a shadowy understanding of a process that may change with the next bit of data gathered. Thus, nothing pleases them more than collecting more data, even if we laymen can't figure how it proves anything.

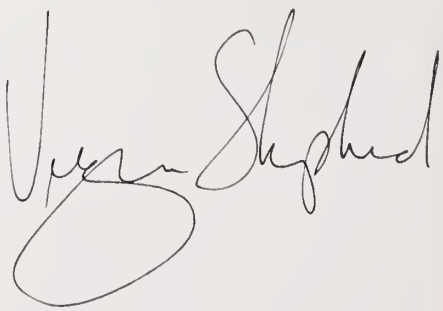
The danger in their disciplined study of life around us is that we common folk get impatient with the process. "Well," we say, "if no one can tell us *for sure* that building a dam, piping water out of reservoir, or discharging waste into a stream will damage an aquatic community, then what's wrong with doing it?"

Fortunately, every scientist will at least admit that every action causes a reaction, and that's one truth we can cling to. When biologists come back to us with the frustrating "I don't know" when we want to know if fragmenting a forest or developing a coastal area is going to hurt a population of warblers or eagles or turkeys or deer, we can take heart in one truth: Whatever we do *will* affect other living things. "How much?" We don't know. "How long?" We shrug our shoulders. "Can they survive?" Maybe. Maybe not. But, we do know this: We can't ever say that whatever we do won't change anything. It always does. We can be sure of that.

At this point, we must decide what matters. We can look to biologists for guidance, for their best opinions of the day about what's best for the land and its inhabitants. They will qualify their remarks and give us many avenues to follow our best—or our worst—instincts.

Because, in the end, that's what it seems to come down to. We can't blame biologists for our mistakes, because scientists are not in the business of making decisions. Instead, their work is to provide us with the very best information they can. Then we decide. And, because our knowledge will never be complete no matter how many studies we pursue, it is up to us to make the leap of faith that science never can. We must look to ourselves and ask in deadly seriousness: "What is the right thing to do?"

We can fool ourselves with the data, or rationalize our decisions to suit our own interests. But, our apologies, our defiance, our excuses won't mean much in the end. Because, as Daniel E. Koshland, Jr. said in *Science* magazine five years ago: "We all win or lose together, and no one can be excused from the game."



Teaching kids to fish can be a rewarding experience—if you do it right—see page 18; photo by Lee Walker.

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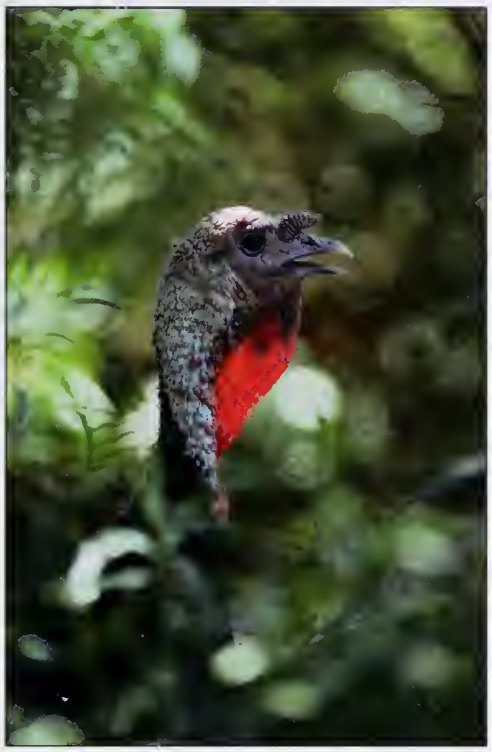

Cover: Wild turkey; photo by Rob Simpson.

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Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

illustration by Michael Simon

Old Marble Eyes

An elusive hunter of the shadowy depths, the fish known as Old Marble Eyes to some and walleye to others, is our least understood fighting fish among Virginia anglers.

by Tom Gunter

Lurking in the depths of many of Virginia's finest fishing waters swims a virtually unknown fish. Elusive and quite unpredictable, it hunts in the dim shadows and in the worst of weather. Like a trap-smart wolf, it will warily strike at your bait, but when hooked it fights like a strong-necked stubborn mule being coaxed from a shade tree during the dog days of summer. Yes, the time has come to introduce this "Yankee" implant. Let's all wet a line for the walleye *(Stizostedion vitreum vitreum)*, Old Marble Eyes.

Better known to Northern fishermen, walleyes are highly sought after due to their elusive nature and their gourmet taste. Considered a cool water species, they prefer water temperatures between 65 and 75 degrees Fahrenheit. However, they are doing very well in Virginia's warmer climate, which is supporting thriving populations as far east and south as Virginia Beach.

Walleyes are the largest member of the perch (Percidae) family. The current world record is a 25 pounder taken from Old Hickory Lake in Tennessee. Virginia's current state record walleye is a 12 pound 15 ounce fish taken from the South Holston River in Southwest Virginia. The state's historic record, however, is a whopping 22 pound, 8 ounce walleye caught in the New River on August 20, 1973. An average-sized walleye in the Commonwealth would be a fish weighing between 2 and 5 pounds.

With a body shaped like a torpedo (fusiformed) and a mouth full of needle sharp, recurved teeth, walleyes are designed to bolt through the water and strike unwary prey. They are truly one of nature's most efficient freshwater predators. Like many wild animals, walleyes are opportunistic, consuming what is readily available with the least amount of effort. Although adult walleyes are primarily piscivorous (fish eaters), there are times when they feed exclusively on insects, or their diet may be extremely diverse and include such things as worms, snails, leeches, frogs, and even mice or young ducks. Whatever they are feeding on, they are extremely efficient. So efficient, in fact, that fish biologists with the Department of Game and Inland Fisheries use walleyes in some instances at high stocking rates as a biological control for nuisance forage species such as gizzard shad, yellow perch, and white perch in an effort to better manage

public fishing waters throughout the Commonwealth.

The body coloration of a walleye varies depending on water clarity. Typically, walleyes have a golden hue, but they will darken in stained water or turn grayish in muddy water. The caudal or tail fin has a distinctive white tip on the lower lobe. Adorned on the top of these fish is an armor of unforgiving and unforgettable spines for any angler foolish enough to carelessly handle them.

The most distinctive body characteristic, however, is their marble-like, glassy eyes. When seen by spotlight in shallow water at night, the eyes appear red—giving them a devilish look. To say those devilish eyes are light sensitive would be an understatement. In fact, the elusive nature of the walleye is due in part to this unique eye and its sensitivity to light intensities. Walleyes will actually avoid or become inactive during bright light periods. Their eyes are designed to gather light rays which helps them to see in dim light conditions. As one might expect with such light sensitive eyes, walleyes have excellent night vision. But, nighttime may not always be the best time to pursue them—though they can be very active at night. The walleye has peak feeding times which are triggered by the amount of light penetrating the water. In clear water, peak feeding periods should occur as the sun rises and sets, when daytime light intensity levels are at their lowest. As light intensity increases during the day, walleye activity decreases and they will seek the comfort of shaded areas or move to deeper water. In murky or choppy water, walleyes may continue to actively move and feed all day depending on how much light penetrates the water. Walleyes do have color vision as well; however, their ability to see color is not as good as other gamefish such as the largemouth or smallmouth bass.

The eye is but one of the weapons walleyes possess that make them such an effective predator and such a good adversary for fishermen.

Walleyes are a formidable fighting fish for anglers willing to challenge them; photo by Doug Stamm.

They are also equipped with a highly developed and sensitive lateral line system, which is a line of specialized nerve cells running along each side of the fish, enabling them to feel vibrations in the water. So sensitive are walleyes to vibrations, they can distinguish an injured or weak fish swimming erratically among a large school of fish. This unique ability also allows walleyes to locate food in water with low visibility. However, this specialized sensitivity also makes walleyes easily spooked by motors, wading fishermen, or the splash of dropping anchors. When

Top Walleye Waters in Virginia

fishing for them, it is best to quietly anchor or troll in 15 to 20 feet of water and cast to them. If bank fishing, it is best to cast to deeper water.

The movement of walleyes is based on the seasons. During the spring (March-May) and fall (September-December) walleyes move in unpredictable patterns. They tend to be on the move constantly and will cover large areas, often swimming in a straight line or at a particular water depth. During these active seasons, walleyes will utilize a variety of preferred habitat, including shallow water, deep-water rock reefs, rock piles, river or creek inlets, and drop-offs. They may be in one habitat one day and in another the very next with no apparent rhyme or reason for choosing one over the other. Regardless of the unpredictable nature of walleyes during the spring and fall months, these seasons are considered the best time to fish for them. As warmer or colder weather approaches, walleyes become more stationary and they will select one particular habitat as their summer or winter hangout. Generally, this selected area is not far from feeding areas and provides them with protection from bright sunlight.

Their sensitivity to light intensity, to changing water conditions, to movement in water, and to the changing of light periods and water temperature during different seasons all play a role in behavioral patterns of walleyes. It takes a lot of patience and practice to learn when and where these fish are most active and to consistently catch them, but that is one of the reasons why fishing for walleyes can be so intriguing. When the devilish red eyes appear in the shallows, it is time to start casting! Take the bait and get hooked on fishing for Old Marble Eyes. □

Facts About Virginia's Walleyes:

The most recent walleye stocking efforts in Virginia began in the early 1970s. By the mid 1970s, this program began to expand as the Department of Game and Inland Fisheries' warmwater hatcheries refined techniques for raising walleyes and as Department fisheries biologists began to find suitable bodies of water in which to introduce the species. Today, some six million walleye eggs are shipped each year to the Stevensville Fish Cultural Station, in King and Queen County. The eggs are received from the states of Colorado, Kansas and New York as trade for striped bass produced at Virginia's Brookneal Fish Cultural Station, in Brookneal, Virginia. From these walleye eggs about 1 million fingerlings (2 to 3-inch fish) will be raised and stocked into designated waters.

Growth rates for stocked walleyes are very good in Virginia,

too good in fact. By age five, a walleye will have grown to weigh between 4 and 6 pounds; however, few of them will survive beyond this age, a phenomenon known as warmwater burnout. Walleye growth is greatly influenced by the amount of food available to them and the length of the growing season. Virginia has an abundance of gizzard shad which walleyes readily feed on, and our growing season is much longer than in the Northern states. The fact that walleyes are short-lived in Virginia may sound alarming at first, but in their short life span they will have reached sizes comparable to much older walleyes from the colder waters of the North.

With its distinctive "marble eyes," the walleye is easy to identify in Virginia waters. Catching a walleye is a different story, requiring patience, stealth, and knowledge of the fish's habits; photo by Soc Clay.

Though most of Virginia's walleye populations are maintained as a result of the Department's supplemental stocking program, there is speculation that a native population of walleyes may exist in the state. The New River may be maintaining a sparse population of a "Confederate" strain of walleye much different from the Northern variety the Department uses for stocking. This is also believed to be true for other rivers throughout the Southeast which support native populations of these fish. This Southern strain of walleye is extremely fast growing and does not appear to experience warmwater burnout. The New River has produced a number of large walleyes, including several former state record fish (12 pounds and greater) and the state's 22 pound, 8 ounce historical record. Sadly, it is believed that this strain will only reproduce in river environments and that it is being eradicated throughout the Southeastern states due to the construction of dams.

Stocking may also have created some historical records of native walleye populations in Virginia. Early records of a reproducing walleye population come from Department records dating back to the mid-1880's. These old reports described a fish similar to walleye being caught from the Nottoway River. This population may have established itself as a result of a train wreck that ruptured tank cars, spilling walleyes into the river prior to the mid-1880's. The Nottoway River walleye sustained its population until some time in the 1940's when, for some unknown reason or reasons, it died out. Restoration efforts to re-establish this species in the Nottoway began in 1980 with the re-introduction of walleye fingerlings. This stocking effort was continued until 1989 and Department biologists are now in the process of evaluating the success of this restoration effort. Unfortunately, as of this writing, no young walleyes have been observed to indicate the population is once again reproducing in the Nottoway.

Citation records from the top 16 walleye waters in Virginia indicate the best months to fish for them are from January through June. These bodies of water, starting with the best, include: Buggs Island Lake, Smith Mountain Lake, Philpott Reservoir, Lake Anna, the New River, Lake Whitehurst, Lake Smith, Burke Lake, Lake Gaston, Claytor Lake, Carvins Cove, the Potomac River, Lake Chesdin, the James River, Leesville Reservoir, and the Dan River.

The introduction of walleyes into Virginia's public fishing waters is truly a success story. They have proven to be an effective management tool for controlling overabundant forage fish populations as well as providing anglers with a trophy fish. Unfortunately, few anglers in the state have discovered their presence and with the possibility of further budget cuts within the Department, future stocking of walleyes in Virginia may be in question. Anglers need to spread the word that walleyes are in the Commonwealth and are here for our enjoyment. Once fishing for them catches on, fishermen will find the walleye's elusive nature a true challenge, and for those anglers who enjoy eating fish, a true delight on the table. □

Fishing Tactics for Walleyes

by Jack Randolph

In the Seventies, the Game Department commenced the introduction of walleyes into many new waters, including some tidal rivers. Although walleyes have done a creditable job of establishing themselves just about everywhere they were stocked, they have proven to be somewhat of an enigma to the bass-oriented anglers of Virginia.

In the northern Midwestern waters, where walleyes are just about the staff of anglers' lives, such baits as nightcrawlers, leeches and minnows are tops. For decades a nightcrawler trolled behind a june bug spinner was the Midwest prescription for walleyes. In recent years, the popularity of the june bug has waned, but nightcrawlers are still a top bait. The Lindy Rig, which employs a special "walking" sinker and a short shank size 4 hook on a long, light leader, is popular for walleyes. Baited with a nightcrawler hooked through the nose or a minnow hooked through the lips, the rig is trolled so slowly that the sinker bounces on the bottom. Some anglers, using electric motors on their slowest setting, troll backwards to obtain the ultra-slow trolling speed effective on walleyes. Unfortunately, this technique has not caught on in Virginia.

One reason nightcrawlers haven't done as well on walleyes here in Virginia as they do in the Midwest is the great competition a walleye has when a nightcrawler is on the dinner table. A bottom-bounced nightcrawler must survive the advances of yellow and white perch, a half dozen varieties of catfish and bullheads, a mess of bream, not to mention landlocked stripers and largemouth bass, all of which hold nightcrawlers in high esteem.

Another bait that hasn't caught on here is the weighted walleye spinner, such as the Erie Dearie. These spinners are super effective on walleyes in the Great Lakes, but they have yet to find their way into the hearts and minds of Virginia's walleye anglers.

Now, instead of discussing the baits that ought to work or don't work, let's look at some that do. I vote for the Sassy Shad to head the list. This is a soft plastic minnow that is impaled on a lead head jig. I prefer the three-inch Sassy Shad on a 1/4 ounce jig head. Hook the plastic shad by entering the point of the hook into the nose of the bait and bringing it out in the center of the back behind the gills. Push the nose of the plastic minnow flush against the lead jig head. The hook should ride with the point up.

Four popular walleye lures (from top): Twister tail grub, Sassy Shad. Right: Cordell Red Fin. Left: Bomber Long A; photo by Roy Edwards.

Since walleyes are somewhat allergic to bright sunlight, you can expect the best results when the sun is not shining directly on the water. Translated, this means fishing is usually best from dusk through dawn. Sometimes walleyes bite well when the water is discolored or when the sky is overcast.

I like to cast the Sassy Shad up and across stream, allowing it to sink to the bottom and retrieving it as slowly as possible. I am partial to the three-inch Sassy Shad in white, ivory, yellow or shad colors. The lead

head can be unpainted, white or yellow. This method works very well in early spring and late fall in the tidal reaches of the Appomattox River and other streams such as Swift Creek and the James River.

Another effective lure is the twister tail grub fished on a quarter ounce lead head. It doesn't seem to matter whether or not the lead head is painted, but white or yellow twister tails are the most effective. This bait is fished in the same manner as Sassy Shads.

Often, walleyes will clobber such lures as Rapalas, Rebel minnows or Bomber Long A's. A bit of orange color on the belly seems to be attractive to these fish. These lures have a proven track record in the spring in the James River near the I-95 Bridge and in the tidal Appomattox. Walleyes in these rivers average two to three pounds, but specimens over nine pounds have been reported.

There are many outstanding walleye waters in Virginia, but not many anglers who have experienced the joy and challenge of fishing for these fine-eating game fish. It's time to try! Photo by Soc Clay.

Deep-diving Bomber baits in the shad color have caught walleyes for me in the upper reaches of Lake Gaston, near the Steel Bridge. Walleyes have been present in these waters for years, but due to recent stocking efforts by Virginia and North Carolina there are probably more walleyes in the lake than ever.

Over the years, night fishing below Kerr Dam during the winter has been said to be successful. Although nearly all my evidence is hearsay, the stories are consistent enough to bear repeating. Bucktails with twister tails added or live minnows are said to be the top baits for this chilly pastime. The rewards are said to be great, however, with walleyes to nine pounds reported to people who reported them to me.

Probably the best walleye run available in Virginia nowadays takesplace in the Staunton River from below Brookneal all the way up to Leesville. This fishing opens up in February when walleye commence their spawning run. Anglers make them run the gauntlet, heaving such things as white or yellow bucktails, twister tail jigs, live minnows and jigs tipped with minnows at them. The result is the capture of some delicious walleye fillets from the flanks of fish that weighed upwards of six or more pounds.

The big question is—if these walleye run the Staunton in the spring, where do they run from? One would think they come out of Buggs Island Lake, but if anyone is catching walleyes in Buggs Island, he isn't talking.

Night fishing Leesville Reservoir with Rapalas, Red Fins and a variety of baits catch walleyes mixed with stripers. This fishing can be good at times.

Larry Hart, the Assistant Director of the Department of Game and Inland Fisheries, was once a fish biologist on Smith Mountain Lake. Larry would walk along the shoreline of the lake at night with a flashlight looking for walleyes. Once he found where the red eyes of walleyes were shining, he would return the following night and catch them on bucktails or Rebel plugs. Larry warns that once a flashlight has shown on a walleye, the fishing there is over until the following evening.

Trap nets used by fishery biologists have proven that Lake Chesdin, near Petersburg, is loaded with walleyes. Unfortunately, anglers have yet to get the hang of catching them. Most catches are accidental with everything from Shad Raps to spinnerbaits claiming an occasional walleye.

Walleyes are also being caught from such waters as Lake Whitehurst in Norfolk, Little Creek Reservoir near Williamsburg, the Mattaponi River at Aylett, Lake Anna, Lake Able in Stafford County and tiny Amelia Lake on the Amelia Wildlife Management Area in Amelia County, but in these waters as in many others, the appearance of walleyes is an occasional thing.

Surely, the time will come when Virginians will become more adept at catching this fine-eating fish. The walleye will never be competition for the popular largemouth bass, but few fish offer a greater challenge to Virginia's anglers. □

Jack Randolph is recently retired from the Department and is now a freelance writer. Tom Gunter is a fisheries biologist with VDGIF.

Zebra mussels; photo by Lee Walker.

the Zebra Mussel

by Sue Bruenderman and Lisie Kitchel

They're tiny. Seemingly harmless. Even pretty, you might say. However, the zebra mussel, an exotic freshwater mussel originating in the Caspian Sea in Europe, has already managed to create havoc in the Great Lakes region and is threatening Virginia waters. It has particularly alarmed managers of industrial, power, and municipal water plants, who have spent millions of dollars in their efforts to remove this little aquatic animal with a striped shell. Although small in size, zebra mussels have voracious appetites and biologists fear that they may outcompete native fish and invertebrates for food. This disruption of the natural food web has direct implications for Virginia.

Tournament anglers and others traveling with boats in tow are in immediate danger of picking up some deadly hitchhikers that could destroy Virginia's native mussel populations, cost millions of dollars, and change the look of the state's waters forever.

For anglers, if forecasts prove correct, those trophy-sized gamefish now hanging above your fireplace may be pretty hard to come by if the zebra mussel moves into our state. Plus, anyone who turns on a faucet at home is susceptible to the wrath of the zebra mussel. If zebra mussels make their way into Virginia's industrial and municipal systems, anticipate paying a higher price to enjoy those extra minutes in a hot shower.

How did it come to be that such a tiny animal is turning into such a pest? It is believed that sometime in 1985 or 1986, zebra mussels made their way into U.S. waters from ships

transporting cargo from Europe. The thumbnail-sized mollusks, unbeknownst to anyone, were contained within the ballast water of the ships, and subsequently were emptied into Lake Erie. It was not until 1988 that zebra mussels were discovered. Since that time, the little beasts have spread like wildfire throughout the entire Great Lakes system, into the Susquehanna River in New York, the Mississippi, Hudson, Ohio and Illinois Rivers, and Kentucky Lake in the lower Tennessee River system.

What is it that enables these little creatures to spread so quickly? They are incredibly prolific! Scientists report that a female zebra mussel can produce up to 50,000 eggs at a time, and can be reproductively mature in as little as three months. They usually reproduce six months out of the year, but in warmer climates like Virginia, they may be able to spawn year-round. Unlike native freshwater mussels which must encounter and attach to the gills or fins of a suitable fish host to complete their life cycle, zebra mussels produce free swimming larvae, called veligers, that can swim in the water column for up to five weeks. If any hard object is nearby, they attach, survive and colonize rapidly. Similar to the marine blue mussels you may have observed on rocks on the Northeast coast, zebra mussels can attach to any object by means of dense, sticky elastic strands called byssal threads. Zebra mussels frequently attach to water intake structures, buoys, pilings, other shellfish, rocks, lake bottoms, boat hulls, *anything*! In the Great Lakes, colonies of 60,000 zebra mussels per square meter have been reported; dense mats of these pests have sunk navigational buoys. Photographs speak a thousand words, and it hits home to see thick layers of zebra mussels attached to bottles and eyeglasses. It's particularly disturbing to see pictures of native crayfish and freshwater mussels, animals which play crucial roles in the natural aquatic ecosystem, hardly recognizable because of the thick mats of zebra mussels covering their external surfaces.

Many questions remain unanswered as to just how this exotic mussel will affect Virginia's waters and her users. For instance, some predict that because mussels feed on plankton and algae, vast colonies of zebra mussels could use up the food supply that sustains populations of zooplankton, which in turn serve as the main diet item of larval fish, which in turn are preyed upon by adult fish. In other words, entire food webs potentially could be altered. On the flip side, however, optimists project that because they are capable of filtering up to a liter of water a day per individual, zebra mussels may serve as nature's "vacuum cleaners." They hypothesize that these animals may help to clean up the water, increasing water clarity and quality, and thereby increasing growth of submerged vegetation, with a subsequent increase in fish habitat.

Saturdays at the beach, however, may take on a different meaning, as sunbathers dodge sharp-edged zebra mussel shells strewn along the shoreline and try to escape the stench of their dead, decaying bodies. Another big question for Virginia is: "How sensitive are zebra mussels to fluctuations in salinity?" and "Can they colonize the Bay?" If they can adapt to the Chesapeake Bay environment, the already struggling pop-

Opposite: *Tournament anglers, in particular, run a high risk of unknowingly transporting zebra mussels into our state; photo by Tom Evans.* ***Above:*** *Zebra mussels attach to anything in their environment, including eyeglasses, bottles and native crayfish and mussels. In the Great Lakes, colonies of 60,000 zebra mussels per square meter have been reported. Colonizing rapidly, thick mats of zebra mussels have clogged water intake pipes and even sunk navigational buoys; photo courtesy of Ohio Sea Grant.*

ulation of oysters in the Bay may face even harder times ahead.

Similarly, 34 species of native freshwater mussels, and one freshwater snail are already endangered or threatened with extinction in the Clinch, Powell and Holston Rivers in Southwest Virginia, the headwaters of the Tennessee River. This diverse natural mussel fauna, the only one of its kind in the world, may face its final demise when the exotic zebra mussel finally makes its way into Virginia. The zebra mussel is already in the lower Tennessee River system—only one state away. These creatures are capable of forming dense mats—building "reefs" so to speak, so there's reason to believe that they could continue building these structures in an upstream fashion, quickening the process by attaching to boats or boat parts, or possibly to the feathers of waterfowl that visit the river. However, this forecast may be premature in that zebra mussels have thus been found only in lake environments; no one knows if they can establish themselves in fast flowing rivers—only time will tell.

The "what if's" go on endlessly it seems, and no one can predict with certainty the extent to which Virginians will have to deal with this European invader. However, the most significant impact documented has been the economic consequences associated with their invasion. Millions of dollars have been spent in the Great Lakes region by industries, power plants and municipal water plants because of shutdowns due to clogged pipes, and attempts to eliminate zebra mussels from water intake structures. These pipes are perfect homes for these creatures for attachment and for obtaining a continuous stream of concentrated food. It may only be a matter of time before this "Great Lakes problem" takes on a greater significance in our own backyard. Although zebra mussels can create problems in the water, Virginians may be in for a shock to find out that they can also create significant impacts to their pocketbooks—the general public can expect to pay higher costs for electricity, water and other commodities. Recreational boaters may find themselves paying additional money to repair or replace engine cooling units and other boat parts damaged by zebra mussels that have found permanent homes in the crevices crucial to their boat's proper functioning.

It's anybody's bet as to where zebra mussels will first enter and establish themselves in Virginia.

However, it's a good bet that our lakes and impoundments will be the first place they will be spotted.

Throughout Virginia are skilled anglers who annually follow the tournament circuit. One week they are in Lake Erie, trying to catch that trophy fish. The next week, it's New York, then back to Virginia to catch a bass tournament at Lake Gaston. It is known that the easiest mode of transport for zebra mussels is by attaching to and "hitchhiking" on watercraft—on boat hulls, engines and their cooling systems, trailer frames, anchor ropes and chains, in bilges, bait buckets, live wells, fishing nets, wheel wells of trailers or cars that have launched a boat . . . any boat part or accessory that gets wet is a ready target for a hitchhiking zebra mussel. You put them together— an avid angler or recreational boater and zebra mussels—and what do you get? Zebra mussels in Virginia.

We need your assistance to protect Virginia's waters! If you are recreating in the Ohio, Mississippi, Susquehanna, Tennessee, Hudson or Illinois Rivers, the Great Lakes, or other infested waters, *please* follow these steps:

1. Check your boat and trailer for attached adults. Inspect live wells, bait buckets, tires, wheel wells, anchors— any and all boat, trailer or vehicle parts that get wet. If you find a zebra mussel or clusters of them, scrape all of them off into a bag, crush, and dispose of the bag in a dumpster or trash can. Do not leave any on the ground or shore where they can wash back into the water.

2. Do not transport any leftover bait, water or plants from the area. Even if you don't see any adults, the young veligers, the size of a grain of sand, may be present in leftover water in your bucket or boat, and can easily travel with you to Virginia. Zebra mussels are not choosy as to the state in which they live.

3. Drain all water from your boat and hose off your boat and trailer with water (hot water if possible), and allow to dry thoroughly for 2 to 4 days, preferably for a week. Adult zebra mussels can live up to 7 days without water. If possible, rinse everything with salted water (1/2 cup table salt per gallon water), then flush with fresh water to prevent damaging your boat and its parts.

4. Before buying animals and plants for your aquarium, check with your local pet store to make sure it is not unintentionally selling zebra mussels.

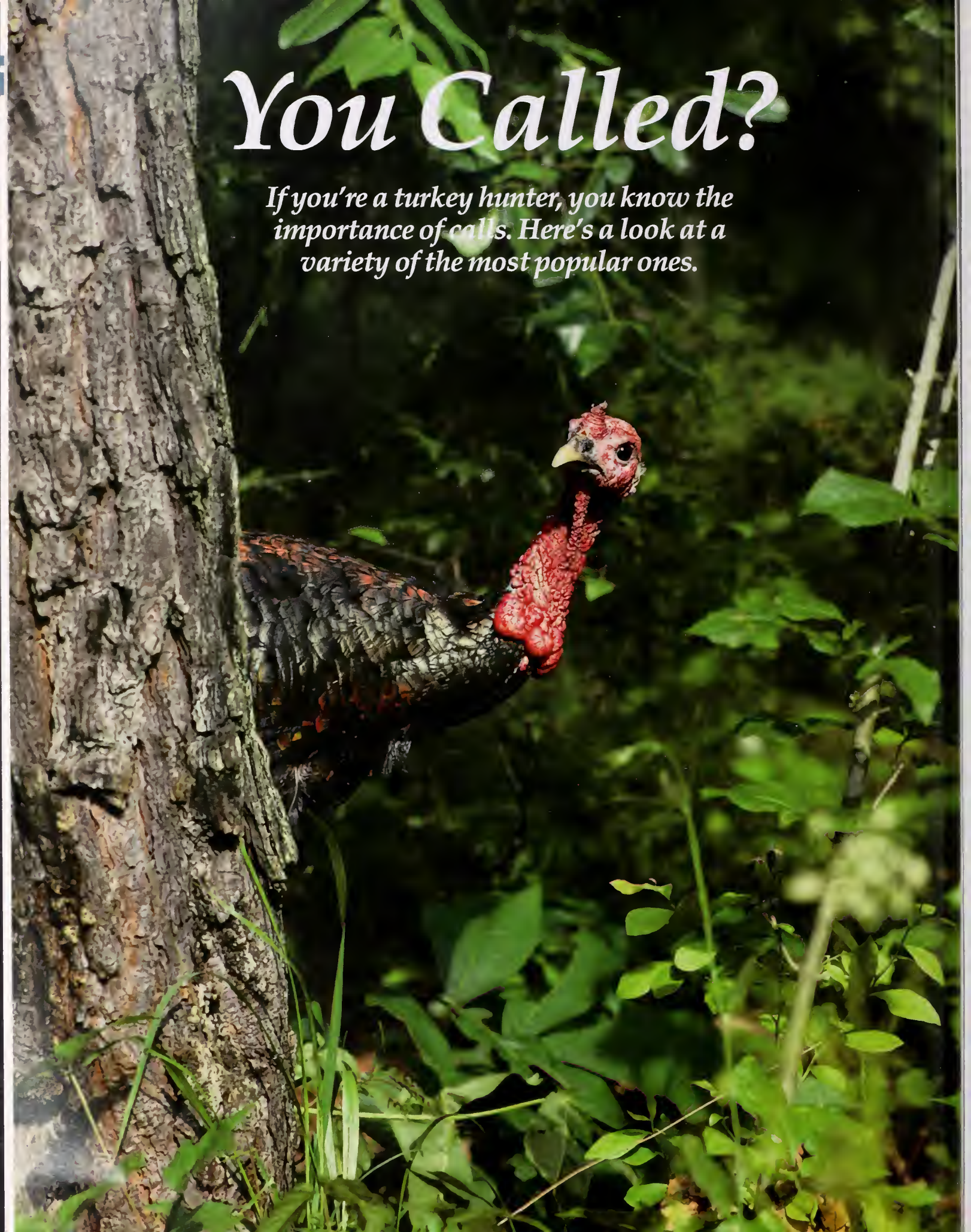
5. If you encounter a zebra mussel or cluster in Virginia's waters, **do not throw them back!** Scrape them off and save a few in alcohol for biologists to identify. Place the rest in a bag, crush and dispose of them in a trash container. Call and bring your preserved zebra mussels to your nearest field office of the Virginia Department of Game and Inland Fisheries (VDGIF), or contact the Fisheries Division at the main VDGIF office in Richmond (804-367-1000).

We need your help to stop the spread of zebra mussels! □

Sue Bruenderman is the aquatic nongame biologist for VDGIF. Lisie Kitchel is a research associate for the Department whose specialty is freshwater mussels.

You Called?

If you're a turkey hunter, you know the importance of calls. Here's a look at a variety of the most popular ones.



by Jack Randolph

If you are a turkey hunter, there's a strong possibility a touch of insanity lies somewhere in your makeup. If you don't believe me, just ask your wife.

You have to be just a little bit nuts to wake up at three a.m. every morning of the spring turkey season, except Sunday, and sleepwalk your way out of the house, waking up only enough to drive to the woods, get out of your truck, and run around hooting like an owl. Well, maybe it's a little more than a touch of insanity.

And then there's the business of turkey calls. Who, but a man with an unstable mind would go around sucking, blowing and scraping everything in sight in hopes that he can make a sound that would be attractive to a lovesick male turkey? Such people have been known to steal toys from little children if they would produce noises that remotely sounded like a turkey. One fellow I know delights in taking ballpoint pens apart, and sucking on the point end of the case in hopes of producing that elusive sound.

As the late Glenn Miller sought "the sound" that would make his orchestra famous, turkey hunters all over our nation have diverted fertile minds from seeking the cure for the common cold to the search for the turkey call that would produce the perfect sound.

"Why don't you simply use recorded calls from live turkeys and let it go at that," you ask?

Well, using electronic calls would be cheating. They are illegal for turkey hunting in Virginia. And, secondly, where's the challenge? Oh, certainly, there are cheats that use them, but cheats of all sorts creepeth upon this Earth, and turkey hunting has its share.

Some say that a gobbler on the roost on an early spring morning will gobble at virtually any sound, from the slam of a car door or the toot of a distant train whistle, to the early morning call of a sleepy owl or the wake up cries of a squadron of raucous crows. If you want to locate a gobbler, there is no better way than letting the old bird tell you where he is.

Carroll Martin, the retired wildlife manager at Fort Pickett, is a master at imitating a barred owl. When he breaks the morning calm with his "Who cooks for you?" no gobbler can keep its mouth shut.

The turkey hunter has a wonderful variety of calls available to him or her, including the box calls, diaphragm calls, and yelpers pictured here; photo by Jack Randolph. ***Opposite:*** *Wild turkey gobbler; photo by Lloyd B. Hill.*

To make the owl hoot, Martin simply cups his hands around his mouth and bellows out the call. Most of us need a little help. Fortunately, there are owl calls on the market. Most require a little practice, but they are not too difficult to master.

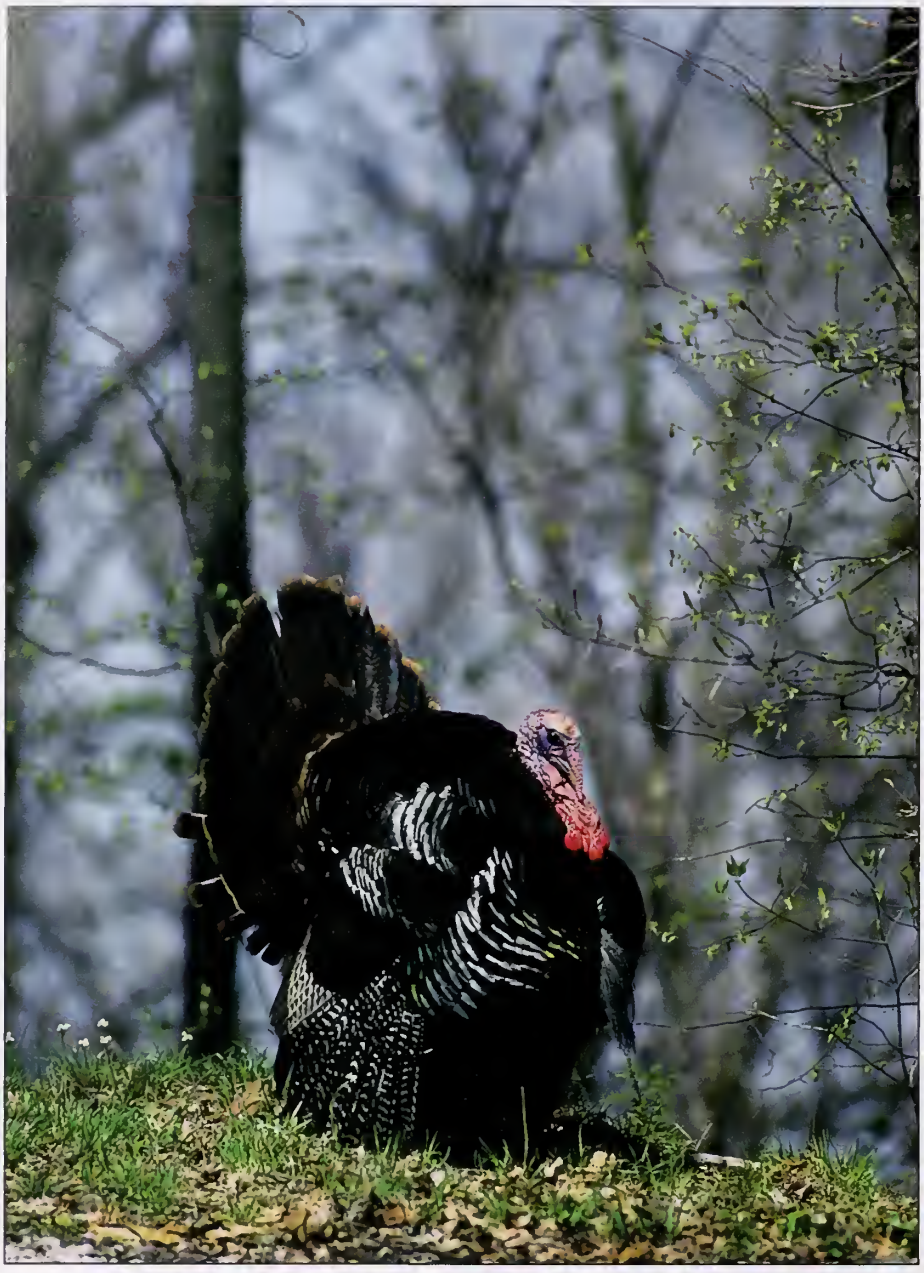
Crow calls are also readily available in sporting goods stores and they seem to work almost as well as an owl hoot. As far as slamming car doors goes, well, when all else fails—slam your car door. I'm not sure about train whistles, but artificial car door slamming calls haven't showed up on the market as yet—but give them time.

Something that is kind of new is a turkey decoy. These plastic turkeys have come a long way. You can now buy fold-up models that fit in the pocket of the hunting coat and they weigh practically nothing.

My son, John, related to me the reaction he witnessed last season of turkeys to a decoy. He had placed the decoy on the edge of a field near his blind before he commenced making seductive hen-like noises on his call. Four turkeys responded. One was a big gobbler. The other three were jakes. There was no question that the jakes knew who was the boss.

The three young gobblers strolled right up to the decoy hen and gave it the once over. Excitedly, they ran back to the old gobbler. According to John, it looked as though they were telling the old fellow that there was a girl turkey over there.

The old boy wasn't fooled. Cautiously the old bird eyed the decoy from afar—well out of shotgun range, while the youngsters kept running back and forth from the



The spring turkey hunter is particular about his calls, because he's competing with the real thing--a lovesick hen--for a big gobbler; photo by Brad Herndon. ***Opposite page:*** *A box call is an effective and easy call to master. Its only drawback is that you need both hands to operate it; photo by Janet Shaffer.*

decoy to the gobbler. Finally, the hunter John was guiding had had enough. The old gobbler flushed like a pheasant when the hunter's shot shattered the morning calm and one of the jakes dropped next to the decoy.

Game Department biologists survey turkey hunters each year following the spring season and one of the questions they ask is what type of calls are favored. By a small margin, diaphragm calls were just a hair more popular than box calls. Diaphragm calls are small, horseshoe-shaped affairs that are held against the roof of the mouth. The trick is to learn to produce turkey noise with the things before you swallow one and kill yourself. The survivors generally turn out to be pretty good turkey callers.

I was exposed to diaphragm calls by the late Ellsworth (Eggy) Hatch of Petersburg. These calls weren't readily available in the sporting goods stores in those days and Eggy made his own.

His recipe called for a couple of cold patches for inner tubes, a piece of surgical rubber from a rubber glove and a short length of springy wire.

He cut each of the cold patches into a horseshoe shape and he bent the wire into the same shape. The purpose of the wire is to keep the sides of the horseshoe taut. He placed the piece of surgical rubber so that it filled the empty "U" in the horseshoe in one of the cold patches. Then he inserted the wire as he placed the other patch on top, with the glue sides of both patches facing. He also used some of the rubber cement that came with the cold patches to cement the deal. The result was a diaphragm call that looked very much like the commercial ones we can buy today.

Eggy was a virtuoso with his homemade diaphragm calls. Not only could he sing every note in the turkey repertoire, he could use the same call to call Canada geese, predators and a whole bunch of other critters.

I've mentioned Eggy in many of my articles in *Virginia Wildlife*, and I believe I told the following story in these pages more than 20 years ago, but it is well worth repeating.

I once asked Eggy how close he had ever called a turkey into him. That was a mistake.

"I'll tell you," he said, with a twinkle in his eye. "One mornin' a few seasons back, I was hidin' behind a log, puttin' out a little turkey conversation, when this old hen commenced to gossip with me.

"'Kow, kow, kow,'" she said, while I lay there listenin' and watchin'. Again she said, 'kow, kow, kow,' gettin' closer all the time. I could hear her breaking sticks, throwin' leaves and yelpin' as she tore thorough those woods, comin' straight at me. Before I could shift into shootin' position she broke from cover just a few feet away and

walked right up to the other side of my log."

"Did you shoot her?" I asked.

"Couldn't, she was too close for shootin'," he replied. "I just reached under the log and grabbed her by her legs."

Seeing my eyebrows go up, he added, "Of course that ol' hen raised quite a fuss. She was so big I couldn't pull her under the log. T'was nothin' I could do but let her go."

"Got away, huh," said I, going for the bait.

"Not exactly," he answered, with a look not unlike triumph in his eyes. "I just called her around to my side of the log and grabbed her again."

That was when I learned of another of Eggy's talents—storytelling.

Eggy once told me that he always carried his diaphragm calls in an aspirin tin because it took the headaches out of turkey calling.

Kidding aside, the fact that diaphragm calls are so small and easily carried is one of the reasons for their popularity, but better yet, the hunter can call with both hands free. This means that he can have his gun in shooting position when the bird first shows.

Box calls are a close second in popularity to the diaphragm calls. Most box calls are about an inch and a half to two inches wide and six or seven inches long. A lid, hinged at one end, is scraped against the edge of either side to produce turkey sounds. In some models the left side of the box is made to produce hen noises and the other gobbler sounds.

A good caller can probably produce a greater variety of calls with the diaphragm call than with the box call, but the box is more than adequate and, I believe, easier to master. While you can't use electronic calls for hunting, a good tape of turkey calls is a great help when you are learning to use a call.

Box calls are a bit on the bulky side, but there is no danger of swallowing one. However, if you are not careful to use a rubber band to keep the lid in place, you may be surprised to discover that the box call in your pocket can sing a solo with no help from you. About every time your left foot hits the ground the darn thing will cluck. I've watched my backtrail right carefully when this happened, but it has called up nary a turkey yet.

There are various kinds of box calls including some spring-loaded ones that can do little more than yelp—but then, sometimes a yelp is all you need.

Someone, probably some kid in school, discovered that if you scrape a hard stick on slate, turkey music starts to happen. This had bred a whole bevy of calls that end up being little more than a stick scraping on slate.

In the right hands these slate calls can do a job on a turkey. I have discovered than mine aren't the right hands. To my dismay I discovered that sticks on slate can also produce some of the best "putt, putt" alarm calls money can buy. So instead of calling turkeys with slate calls, I have succeeded in scaring a few right out of their spurs.

Hunting literature makes a big thing out of yelper calls made from the wingbone of a turkey. I can get the same noise out of the bottom side of a G.I. ballpoint pen, but because it doesn't come from the wingbone of a turkey or the jawbone of an ass, it is not quite the same thing.

The turkey noise is all bottled up in these yelper calls and the way to get it out is to suck on the small end of the call, whether it be a wing bone, G.I. pen or a Tom Turpin Yelper. They all are excellent calls and if you log the practice time, they will log some birds for you.

The popularity of turkey hunting has grown so much, it supports a pretty healthy industry of turkey calls and other accessories. I have read accounts of one well-known turkey hunter who uses more calls in a day than I do bass plugs.

But, as miraculous as these turkey calls may be, there are other more important miracles that happen every spring to bring me back to the turkey woods. The first miracle is that I wake up in time to go hunting. The second is the beauty of the woods on a spring dawn when the black changes to gray and the gray magically shifts to the pastels of spring—the white snow drifts of dogwood—the blush of redbud or the lavender of black walnut. Then there are those special springtime greens—always light and bright as if newly washed. Next come the bird sounds. Tentative chirps at first—the distant hammer of a woodpecker—the assembly calls of a covey of quail—a caw of a crow and then the thunderous roar of a bull gobbler. □

Formerly assistant director of VDGIF, the recently retired Jack Randolph is now a full-time hunter, fisherman and freelance writer.

Kid Fishing

A day of fishing with a youngster may turn into a day of frog hunting, skipping rocks and catching bugs. The key to fishing with kids is patience and flexibility.

by Jill Barnes

What do fish and frogs have in common? Nothing really, except when the fishing gets slow, it might be time to go frog hunting.

Hunting frogs, looking for bugs or just taking time to enjoy nature are all part of taking kids fishing.

You're probably asking, "Aren't you supposed to catch fish on a fishing trip?"

Sure, but that's only part of it when kids are involved. Catching fish should be the bonus. And don't be surprised if your son or daughter talks more about "the one that got away," instead of the one in the creel.

It's never too early to take a kid fishing as long as you have the patience to deal with tangled lines, hooks in trees and wet feet. Both my boys started while still in diapers. I remember taking Erik, now eight, in a backpack carrier while river fishing. His brother Danny, 3, already has hooked his fair share of sunnies and pickerel from our lakeside dock.

The fish don't have to be "hawgs," either. A kid's face will brighten with his or her very own "big one," which most likely will be a 6-inch panfish. Fishing also gives families a chance to enjoy a day out in the fresh air. And if you enjoy camping, it can add to the trip when fishing is part of the activities.

Erik's introduction to fishing coincided with the beginning of trout season. We weren't afraid to bring him along, whether it was river fishing, on a lake or out in the bay. It's been the same with Danny. We just took the proper precautions.

Life jackets are an important piece of equipment for any angler, particularly children. Our kids wear theirs diligently whenever they're out on the water, whether it's in a canoe, rowboat or speedboat. They've been in them all. It's so ingrained in their minds that they don't have to be reminded about wearing one. Most times when we mention going for a boat ride or planning a fishing excursion, the life jackets are brought out without being told.

It's also a good idea for children to wear a flotation device when fishing by a river, especially one with fast-flowing water. A few summers ago, we had the opportunity to try our luck on the famous Yellowstone and Gallatin rivers in Montana. Some stretches were very fast moving, but Erik, then 4, tagged along wearing his life jacket, and carrying his pole. He didn't catch a fish, but it wasn't for lack of trying.

Life jackets come in all sizes from infants to adults. Infant ones have special collars to keep the head afloat. For smaller children, I would recommend the vest type, which either zips or buckles in the front. Some vest types also include a strap between the legs for extra security. The strap keeps the jacket from bunching up at the neck when the child is in the water. The jacket style also seems more comfortable than the old-fashioned, around-the-neck type. And, they are great if you decide to quit fishing for awhile and opt for a quick swim on a hot day.

Fishing equipment should be kept fairly simple. Old hand-me-downs usually aren't a good choice for young anglers, or any novice for that matter. Older equipment tends to be too heavy, too big and usually comes with an old reel that even you had trouble with when it worked properly. With so many different types of light and inexpensive fishing tackle on the market, it pays to get a child matched with something that will give both of you pleasure. It's frustrating enough when learning the fine art of fishing without

Introducing kids to fishing should be a fun experience, full of much more than just fishing; photo by Lee Walker.
Opposite: *Photo by Soc Clay.*

adults losing their temper with a difficult rod and reel.

There are several companies making tackle just for kids. Zebco offers small, one-piece rod and reels with pictures of cartoon characters, such as Snoopy or Mickey Mouse. The funny faces often remind kids which way to hold the rod so the reel is in the proper position. The reels on the one-piece rods usually are closed-faced to avoid backlash and tangles.

Fisher-Price, known for its educational toys, recently came out with a fishing kit for kids. Instead of having an exposed line, it's enclosed in the telescoping rod. A small tackle box is included with everything to get a youngster started, such as hooks, bobbers and weights. It also has booklets on the different species of fish and fishing techniques.

Whether you buy a specially made children's set or just a smaller rod, it's usually a good idea to stick with a closed-faced reel for the beginner. Spinning equipment or baitcasters tend to bring about more tangles, which usually result in short tempers. After a year or two of fishing experience, older kids can graduate to open-faced reels.

If you need help in deciding what to buy, your local tackle shop or outdoors store would be a good place to start. They're usually helpful with matching equipment to experience because they won't get return business by giving bad advice.

After gearing up, you should practice casting in the backyard or some open space, like a parking lot or football field, just to get the feel of things. Most kids have one of those big plastic wading pools. Try aiming at that. Make a game of it, maybe keep score, and award a prize at the end. It also wouldn't hurt you to practice a little at the same time. Keep it fun and simple. Making fishing a chore is the fastest way for kids to lose interest.

Don't forget, the key to taking a kid fishing is patience. Try to remember when you were a little guy on your first fishing trip. Things you take for granted are new to a little person. Start small, in both expectations and bodies of water. Fishing for bass or trout is difficult to master; there's too much delicate feel involved. But panfish, such as sunnies, bluegills, pickerel and perch, almost hook themselves, and all you need are old-fashioned worms for bait. These little fish also provide a good fight, which increases the excitement. Panfishing can bring hours of enjoyment, and are good eating. If you're near saltwater, a day of snapper fishing brings the same results.

Another good idea is to make a special day out of the first few trips. Talk about it in advance, get things ready the night (or day) before, so you don't forget anything. Dig worms, look for grubs. Decide on an "Official Fishing Breakfast." Also have a plan of attack if the weather is bad. Have some suitable foul-weather gear for the kids in case your day goes from sunshine to rain clouds.

As most parents know, a child's attention span is short. So, don't be surprised if after 15 minutes of your long awaited trip, you find him or her throwing rocks, looking for bugs, netting frogs or playing with the plastic worms. Kids seem to love the feel of those multi-colored worms. But that's okay, too. Part of the fun of fishing is seeing new things and just

You must keep in mind a few important things when introducing kids to fishing. First, think about how you felt when you were just a youngster taken on your first fishing trip. Everything was new and wonderful, from the squishy mud to the bugs floating on top of the water. Have patience. Secondly, don't make the trip too long, and keep plenty of food on hand for the hardworking anglers!
Photo credits ***opposite page*** *(clockwise from far left): Soc Clay, Ken Hunter, Roy Edwards.* ***Above:*** *Photo by Dwight Dyke.*

being together in the outdoors. If you're daring, some children enjoy casting bigger lures. Younger kids like to reel in a Jitterbug or Tiny Torpedo because of the gurgling noise.

You might want to plan a short hiking trip to go along with the fishing. Examining leaves or picking up shells can be educational. If they decide to take a break, you can still fish while your child plays nearby. You might also bring along a favorite outdoor-type toy, such as a pail and shovel. It also is a good time to talk about the importance of keeping your fishing area clean for the next person, or giving water safety tips.

And don't forget to bring along plenty of food. When fishing is slow, kids tend to get hungry in a hurry, at least my kids are like that. We take along lots of snacks, fruits and drinks. Some favorites are jelly sandwiches and boxes of raisins. If you're really ambitious, you could bring along a little cook stove and prepare a shore lunch with your catch.

But, keep things in proper perspective. Don't expect expert results in the near future. Fishing takes time to learn, and if you push too hard, you may lose a fishing buddy forever. If you do things right, maybe your child will enjoy fishing so much that they'll talk about it when they're away from the water or even in the winter.

Fishing also brings about new friends. Whenever we've tried a new place, Erik always has found new friends to dunk a line with.

As his "expertise" has grown, so has his catch list—catfish, bass, trout and walleye. He's also been reading up on the subject of fishing. He recently received a book called *The Kids' Book Of Fishing*, by Michael J. Rosen (Workman Publishing, New York). It included a few hooks and bobbers. Erik was especially interested in the section on how to catch crickets for bait with a loaf of bread. Hmmm . . . better check the bread box.

I'm sure it won't be long now before Danny will be cleaning out the refrigerator for bait. But, that's the price you pay for a fishing buddy. □

Jill Barnes is a freelance writer from Fairlawn, New Jersey.

Staff photo

A Tribute to the Oldies

Here's a look back into the colorful history of lures

by Jack Randolph

Nearly a 100 years ago a Michigan angler, James Heddon, carved a fishing lure out of wood and it was good. His were not the first fishing lures made of wood, but Heddon is generally recognized as the father of modern fishing plugs. Just for the record, though, a wooden fish lure was patented by Haskell in 1859 and Pflueger patented a luminous painted plug in 1883.

When I started bass fishing in the Thirties, the standard bass plug of the day was made of wood, weighed 5/8 of an ounce and sold for less than a dollar. In fact, one of my most cherished plugs came from Auto Boys and it cost all of 19 cents. You couldn't start to lift the bass it caught.

The plug started out sort of a silver gray with a black stripe down its side. Today, it has a red head and white body and it is covered with silver flakes. The hooks have been changed so often that the hook hangers are now held in place with epoxy. In fact, as soon as I find a suitable walnut plaque, I'm going to glue the old plug to it and retire it to a place of honor on the den wall.

I guess it's possible that some fishermen don't know what a plug is. Many people call them "crankbaits" these days. What a terrible thing to call a fishing lure! A crankbait is a box of candy for your mother-in-law. A fishin' plug is what you catch fish

with! But what can you expect from a crowd that can't tell a pretty bass from a hawg?

Those of us who grew up when PLUGcasting reels backlashed nine times out of 10 and when our rods were made of steel and our lines of silk can get right misty-eyed when we talk about some of the old plugs we used to chunk at bass. Take the Heddon Vamp, for example.

They flew the flag at half-mast on the Chickahominy the day Heddon decided to stop making Vamps out of wood, making them from plastic instead. What happened overnight was a black market in wooden Heddon Vamps. I used to drive up to Jersey and buy wooden Vamps from unsuspecting Yankees and bring them back down here. In those days on Chickahominy Lake, if you were out of wooden Vamps, you were out of fishing lures. In fact, I don't believe there was any artificial lure on the lake before, during or since that was as important as the Heddon Vamp.

The Vamp is no little lure. It was brought on the market by Heddon around 1921, and measured about 4-1/2 inches long. A few years later, in 1927, Heddon introduced a jointed version (locally called the Broken-Back Vamp) that was a shade longer.

A big lure with lots of air resistance, it was tough shoving a Vamp into the wind using the backlash-prone reels of the day. The Vamp has a rolling, wide-ranging motion that is super-attractive to bass of all sizes. Even little 10-inchers will attack a Vamp.

If you called a Vamp a crankbait, it would most certainly backlash and do damage to your anatomy. I haven't cast one lately, but there is not a doubt in my mind that our modern bass, even having been caught and released so many times that they think their native habitat is a live well in a bass boat, will still recognize a good thing when they see it, and do their best to do it harm.

Another old bait that comes to mind is the Lucky 13. This is another Heddon creation, one made of wood with a scooped-out face. The older models have glass eyes.

The Lucky 13 is another big bait, about 3-1/2 inches long. A few years after Heddon switched to plastic, the demand for wooden lures remained so strong that they made a few wooden copies of old baits, called Classics. All of these lures are still being made today in plastic, and are available in most modern colors, including the popular fire tiger, which is almost a "must" color on our tidal rivers.

A few years ago, on Wards Creek off the James River, I tied on an old wooden Lucky 13 and started to heave it about, just for old time's sake. I doubt if the bass in that creek had ever seen a Lucky 13. Many of them wanted to take that bait home with them for further examination. After landing a half dozen broad-shouldered bass, something grabbed that bait that was big enough to gain my full attention. I thought I had a bragging size bass, but as things turned out it was just a nine-pound channel catfish lure collector that ended up being the collectee instead of the collector.

As I recollect, I didn't buy that old Lucky 13. I sort of picked it like an apple from a tree at Lake Prince where some unfortunate had left it. Having decorated a few trees in my day, I feel no remorse in adding that plug to my collection.

The thing I like about the Lucky 13 is you can jerk it along the surface where the bait makes a "splat, splat" sound that holds some demonstrated attraction for fish. Or you can reel the bait along while it wiggles and wriggles from one side to the other while travelling about a foot below the surface. To my way of thinking, that's pretty good action for a bait that is over 70 years old.

I bet you know all about Zara Spooks. How much do you know about the Zaragossa?

The Heddon Zaragossa was the forerunner of the plug we know and love as the Zara Spook. Made of wood, the Zaragossa had a chunk of lead buried in its nether parts that made it bob up and down. Coaxed along with a little rod tip action, this lure dances a jig without moving a foot across the water. It is the perfect lure for working those pockets back in the weeds. Fresh from the factory, we found the armament to be a little light. Just two treble hooks were not enough. To make this plug a sure hooker we added another treble hook amidships.

I can't think of the Zaragossa without thinking of Sunken Meadow Pond in Surry County. This pond has the clearest water I have ever seen in a pond, probably because the water is filtered through the jungle of weeds that inhabit it. A Zaragossa tossed onto these waters is indeed an endangered species. My remaining Zaragossa holds the dental records of several Sunken Meadow pickerel, long deceased. But if the pickerel didn't clobber it, the bass would.

Certainly, today's plastic Zara Spook is an excellent lure, but once you've used an old wooden Zaragossa, I think you'll agree that something was lost in the translation.

When I was a youngster, the hunting and fishing magazines contained advertisements for bass plugs that showed scores of dead bass nailed to trees, sheds,—anything strong enough to hold a nail and a few fish. Some I remember in particular were those selling the Fred Arbogast Jitterbug.

The Jitterbug, named for a popular form of dancing in the Thirties, came along just about the time I began to take an interest in bass fishing, in 1937. It was as great a plug then as it remains today.

Early versions of the Jitterbug were made of cedar. They had glass eyes and a metal mouthpiece. During World War II, the metal mouthpiece was replaced by a plastic one, but many anglers felt the war-time model was less effective. A jointed version was introduced some years later and early versions of this model had a weak joint and would pull apart. This was quickly corrected. A musky size was also produced, but big bait minded Virginians turned this king-size plug loose on bass, often with gratifying results. A "spinning size" model also won the hearts and minds of smallmouth bass fishermen. The Jitterbug has earned its acclaim as the best top-water bait to come along yet.

Bass casters who fished Lake Gaston in the early Seventies have fond memories of another Arbogast bait, the Arbogaster. This bait is a deep runner with a wooden body and rubber skirt tail. It dives straight down, or almost straight down, and the skirt gives it an action that bass find hard to resist. You seldom asked a successful Lake Gaston angler what bait he was using. You simply asked what color Arbogaster he was using.

You seldom see anyone using this lure anymore, but there is no question in my mind that the Arbogaster will continue to fool bass wherever a deep running bait is called for.

Come to think of it, all of the plugs we now call old are new to the bass we are fishing for today. Most of them are as lethal today as they were years ago.

We consider spinnerbaits to be modern inventions. I first ran into spinnerbaits in Kansas in 1964. They were cottage industry baits in those days. Virtually all of them were made by anglers at home as a part-time hobby. I brought a few of them home with me and the bass in Chippokes Creek ate them up. But spinnerbaits weren't all that new. Probably the best known of the bunch were Arbogast's Hawaiian Wigglers.

The Hawaiian Wigglers came in three models, but they each employed a metal head, a spinner and a rubber skirt. Bass went after them. As a matter of fact, they still do after more than 60 years.

Another famous old bait company, Creek Chub, produced some classic plugs. My favorite of the bunch is the Pikie Minnow. This lure comes in straight models and jointed and in sizes ranging from tiny spinning models up to husky striper lures. My favorite was the straight model in the snook size with a silver flash finish.

The silver flash was little more than green and white with lots of silver glitter glued to it, but how it caught fish! The fish in this case were striped bass in salt water. The Pikie has a very tight wiggle which is appealing to stripers and other game fish.

Like many other lures, the Pikie made its debut in wood with glass eyes. Nowadays most of them are made of plastic and the glass eyes are history.

Another great old lure that is still fooling fish is Eppinger's Daredevle. This spoon comes in many shapes and sizes and is as effective on trout as it is on pickerel and bass. But, the Daredevle is not just another spoon. The thickness of the metal in each spoon is generally not uniform. Each model is designed for long casts and great action.

Actually, in 1906 when the lure was born, it was called the "Osprey" and it gained considerable local fame up in Michigan under that name. After World War I, Eppinger renamed it the Dare Devil in honor of the U.S. Marines. To avoid offending church folk, the name of the bait was deliberately misspelled, creating the famous Daredevle.

I'll never forget casting a Daredevle in New Jersey's Tom's River. I had a strip of pork rind attached to the treble hooks which made the bait about six or seven inches long. Imagine my surprise when, after a solid strike, instead of the expected pickerel, I landed a 17-inch brook trout. Today, instead of hooking pork rind on the treble hook, I fasten a small snap to the ring that links the treble hook to the spoon. I snap the pork rind into this snap, creating a shorter bait and increasing the number of strikes hooked.

As I sit here in my study and look at my collection of old lures, I see an old Heddon Flaptail, an ancient top-water bait that tarpon once used as a volleyball in south Florida. There's that black and white deep diver River Runt Spook that caught that eight pounder from the Chickahominy. There are Mirrorlures and Atom Plugs, a Crippled Minnow, old Rapalas and Bombers that look like bombs. Each plug has a story to tell and I wish I had the time and space to share them with you.

I have used and collected plugs over the years. I have some I bought over 50 years ago and several purchased new just yesterday. When I unpack them and assign them to their place in a tackle box, they become plugs. There isn't a crankbait in the lot. □

A collection of good oldies, clockwise from left top: Arbogast's Hawaiian Wiggler #2, Eppinger's Dardevle, Arbogast Jitterbug, Arbogaster, Heddon Zaragossa, Heddon's Lucky 13, Creek Chub's Pikie Minnow, Heddon Vamp; photo by Lee Walker.
(For a good reference on old lures, look into Carl F. Luckey's ***Old Fishing Lures and Tackle No. 3****, published by Books Americana, Inc. P.O. Box 2326, Florence, AL 35630.)*

Formerly assistant director of VDGIF, the recently retired Jack Randolph is now a full-time hunter, fisherman and freelance writer.

Winter Comfort
By
Bob Henley

Winter Comfort

by Bob Henley
A limited edition of 950 . . .
Available now from *Virginia Wildlife.*

We are proud to offer wildlife artist Bob Henley's limited edition print of two red foxes in snow to our *Virginia Wildlife* subscribers. Bob Henley's breathtaking work has been featured in the February and July 91 issues of *Virginia Wildlife*, and for weeks after those magazines appeared, people called us inquiring about Bob Henley prints for sale. We realized that our subscribers weren't content to have a Bob Henley work in their magazines, they wanted one for their walls! And, lo and behold! Bob has allowed us to make a special offer to our subscribers. First, you can have your very own 13"x19 1/2" *Winter Comfort* print for $35 when you buy two one-year subscriptions to *Virginia, Wildlife*. That's a savings of $10 off the regular price of *Winter Comfort.*

Of course, if you've already given everyone you know (including yourself) a subscription to *Virginia Wildlife*, you can still purchase *Winter Comfort* for $45. Any way you look at it, we hope you're as happy as we are about the opportunity to own a Bob Henley limited edition print for under $50. Orders yours today!

Use the gray card in this magazine to order your prints and subscriptions, or send in your list of gift subscriptions and the number of prints ordered with your check made out to: *Treasurer of Virginia*, to: *Virginia Wildlife*, P.O. Box 11104, Richmond, VA 23230-1104.

Freshwater Game Fish Poster

The Virginia Department of Game and Inland Fisheries has produced a full-color 21" X 36" poster of 23 freshwater game fish in Virginia. This identification poster of fish includes largemouth bass, trout, crappie, catfish, perch and pickerel, and can be purchased by sending a check for $8 to:
Fish Poster, Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104. Please make check payable to: Treasurer of Virginia. ☐

Your Suggestions For Public Water Access Needed!

Dear Boaters and Anglers:

The Department of Game and Inland Fisheries together with the Department of Conservation and Recreation is developing a long-range plan to address statewide water access for boating and fishing. The first phase of the access plan, an inventory of existing access sites, has been completed. Now, we need your help. Where do you feel public access to the waters of Virginia are needed? Please complete the following questions regarding your top two priorities for access. Thank you for your help.

Where Do We Need Water Access?

First Priority

1. On which body of water? _____

In which county / city? _____

General location / area? _____

Type of Access Needed (Please Check):

Boat Ramp Facility ____ Hand Launch Facility (small boats) ____

Fishing Access: Bank Fishing ____ Pier Fishing ____

Comments: _____

_____

_____

Second Priority

2. On which body of water? _____

In which county / city? _____

General location / area? _____

Type of Access Needed (Please Check):

Boat Ramp Facility ____ Hand Launch Facility (small boats) ____

Fishing Access: Bank Fishing ____ Pier Fishing ____

Comments: _____

_____

_____

Return by May 1st to:

Department of Game and Inland Fisheries
Lands and Engineering Division
4010 West Broad Stieet, Richmond, VA 23230-1104

Virginia Wildlife Bound Volumes Available

Are your *Virginia Wildlife* magazines piling up in a corner, taking up space, getting dog-eared and gathering dust? Why not order a hardbound volume of *Virginia Wildlife* and have a year's worth of magazines protected forever on your bookshelf? We have a limited supply of sturdy hardbound volumes available for purchase at $15 each. You can order a hardbound copy of the 1985, 1986, 1988, 1989, 1990, or 1991 edition of *Virginia Wildlife* by sending your check to: *Virginia Wildlife*, P.O. Box 11104, Richmond, VA 23230-1104. Please specify which volumes you're requesting with your order, and make your check ($15 for each volume ordered) payable to: Treasurer of Virginia.

Again, our supplies are limited and we will fill requests on a first-come, first-served basis. □

Wanted: A Good Book to Read

Here at *Virginia Wildlife* we are putting together a list of "Good Reads for the Hunter and Fisherman." We figure that the sportsman always needs a good book to read to pass the time this summer while waiting for the fish to bite, or to survive the long winter nights of February. We'd especially like to introduce kids to the titles of well-loved books about the outdoors that we cherished as youngsters, and books we still reread as adults. So, if you'd like to share some good reads with our readers, please drop a note to: Virginia Wildlife, Attn: Virginia Shepherd, P.O. Box 11104, Richmond, VA 23230-1104. □

Little River Warning

Our story on the Little River (January 92) prompted a response from L. Philip Bailey of Vinton who pointed out that the Class III rapids mentioned are primarily in the last four miles of the 13-mile section between Route 8 and Route 787. Bear Cub Falls, Bear Falls, and Shoulder Snapper in this section can be dangerous.

Bailey is the editor of *Fishin' Pole, Pack, and Paddle,* the newsletter of the Float Fishermen of Virginia. □

Letters

Sign Language

I look forward to each issue of the *Virginia Wildlife*. As a hunter and fisherman, it provides valuable information for me and I like the photography.

I hope I can get you interested in publishing an article on how to interpret the various markings in the parks and wildlife management areas. For example, you go through the park to get to the Rapidan Wildlife Management Area and the entrance is clearly marked. However, after you enter the area and start up the mountain to the left, you see signs which say no hunting or trapping. Later these signs are discontinued—does this mean you are back in the wildlife management area or still in the park area?

I believe many of your readers would welcome such an article. If you can't be specific due to the various markings or the lack of standard markings, a general guideline would help. In any event, I like your publication—keep up the good work.

Albert A. Anthony
Springfield

Thanks for the compliments on our magazine! In regard to your question about boundary lines, our Wildlife Division reports that lands owned by VDGIF are marked with yellow boundary paint. The Shenandoah National Park boundaries are marked with red paint along with "No Hunting" signs. All of this is clearly shown on USGS topographical maps.

I hope this information helps clear up any confusion you and other readers might have in figuring out where our wildlife management areas begin and end.—Editor

VW Report Card

Your February issue "The Eastern Shore: A Delicate Treasure" is the best issue you have had.

Mrs. W. Banks Jordan
Bluefield, WV

Great magazine! Keep up the nice work during these hard times.

G.M. O'Brien
Vienna

A Family Tradition

Enclosed is my check in the amount of $24.00 for a three-year subscription to *Virginia Wildlife.*

Over the past years, I have enjoyed your magazine—a "shared" subscription with my father Leroy Cline. *Virginia Wildlife* has been as much a part of my outdoors education as the Boy Scouts, the George Washington National Forest and the Winchester Legacy.

With my father's passing in January, I would like to carry on with a treasured Virginia tradition—my own subscription to your fine magazine.

Keep up the good work.

Charles E. Cline
Dayton

Virginia's B

Hall of Fame List for 1991

Below is a list of the anglers reaching Master and Expert status in the Virginia Department of Game and Inland Fisheries' Freshwater Fish Citation Program from January to December 1991. Congratulations to the best anglers in Virginia!

Master Angler: Each angler listed has caught 5 citation fish, each of a different species.

Expert Angler: Each angler listed has caught 10 citation fish of the same species.

Citation Sizes:

Bass, Largemouth . . . . . 8 lbs.
Smallmouth . . . . . 5 lbs.
Striped . . . . . 20 lbs.
White . . . . . 2 lbs., 8 oz.
Rock Bass . . . . . 1 lb.
Bowfin . . . . . 10 lbs.
Catfish, Channel . . . . . 12 lbs.
Flathead . . . . . 25 lbs.
Blue . . . . . 20 lbs.
Carp . . . . . 20 lbs.
Chain pickerel . . . . . 4 lbs.
Crappie . . . . . 2 lbs.
Gar . . . . . 10 lbs.
Muskellunge . . . . . 15 lbs.
Northern Pike . . . . . 6 lbs.
Perch, Yellow . . . . . 1 lb., 4 ozs.
White . . . . . 1 lb., 4 ozs.
Sunfish . . . . . 1 lb.
Trout, Brook . . . . . 2 lbs.
Brown . . . . . 5 lbs.
Rainbow . . . . . 4 lbs.
Walleye . . . . . 5 lbs.

For more information on our Freshwater Fish Citation Program, write to the Virginia Department of Game and Inland Fisheries, 4010 West Broad Street, Richmond, VA 23230-1104.

MASTERS

Ball, Jeff	Richmond
Beaber, Ronald	Richmond
Bell, James A.	Mechanicsville
Bookout, Daniel S.	Chesterfield
Brannan, Ronald E.	Chesapeake
Byran, Greg	Chesapeake
Bryant, Vernon L.	Courtland,
Caldwell, Harvey	Virginia Beach
Campbell, Faron	Partlow
Canipe, Robert E.	Chesapeake
Clevinger, Carl D.	Victoria
Cole, Wade	Mechanicsville
Daniel, Charles L.	Richmond
Dolan, Charles W.	Richmond
Donithan, Jr., Douglas	Pulaski
Downs, Jerry M.	Vesuvius
Dunaway, Edward	Richmond
Duncan, Bernard W.	McCoy
Dunithan, David W.	Vinton
Elkins, Thomas F.	Chesapeake
Forbes, III, Hampton	Covington
Ernestes, Sr., William M.	Goochland
Gardner, Glenn M.	Narrows
Gray, Jr., James F.	Daleville
Gray, Michael L.	Midlothian
Greer, Steven T.	Pulaski
Hardy, Brian	Axton
Hill, Randy	Woodlawn
Hott, William A.	Mechanicsville
Howell, Randy W.	Littleton, N.C.
Humphries, Lloyd	Waynesboro
Jacobs, Bobby	South Hill
Jones, Charles T.	Mechanicsville
Jones, John T.	Bumpass
Kelley, Keith	Virginia Beach
Kennedy, Douglas L.	Richmond

est Anglers

Major, James W.	Mechanicsville
Martin, Melvin D.	King William Court House
McAlister, Robert E.	Mechanicsville
Meredith, Melvin W.	Blacksburg
Miles, Perry	Chesterfield
Murray, David T.	Roanoke
Myers, Ronnie	Chatham
Palmer, Roger D.	Williamsburg
Rigney, Donald N.	Sandy Creek
Rizzer, Joseph D.	Suffolk
Rowe, Stephen A.	Dewitt
Sclater, Wayne	Mechanicsville
Scruggs, R.S.	Gretna
Smith, Tyler T.	Richmond
Songer, Cliff	Narrows
Spain, Edward	Chester
Stump, Andrew	Dublin
Taylor, Andrew B.	Trevilians
Terry, James L.	South Boston
Vassar, James H.	South Boston
Vaughan, Richard J.	Richmond
Webb, Robert T.	Blacksburg
Weber, William H.	New Kent
Welcher, Cecil E.	Bridgewater
White, Michael A.	Richmond
Whiteford, Craig I.	Virginia Beach
Williams, Keith S.	Mechanicsville
Wilson, Dale	Huddleston
Wilson, Jr., Henry A.	Charles City
Winter, Paul E.	Fredericksburg
Worrell, James M.	Suffolk
Wright, Brian K.	Roanoke
Younger, Ray	Nathalie

photos by Lee Walker

EXPERTS

Anderson, Donnie	Catawba
Arthur, Ellis W.	Baskerville
Atkinson, George	Crewe
Baldwin. R.W.	Mechanicsville
Barker, Herbert M.	Crewe
Blackard, Donald A.	Stuart
Blevins, David	Woodlawn
Bobbitt, Gilbert	Hardy
Bowen, Cecil R.	Virginia Beach
Bradley, Marshall	Franklin
Brooks, Brian C.	Colonial Heights
Brooks, Jeffrey S.	Mechanicsville
Bryant, John W.	Boykins
Clements, Steve H.	Mechanicsville
Cooke, Eldridge M.	Covington
Craft, Bruce	Richmond
Dolan, Charles	Richmond
Duvall, David L.	Glen Allen
Falls, Richard T.	Suffolk
Gentry, John	Portsmouth
Gill, Roger	Richmond
Gillispie, Jr., R.V.	Eden, N.C.
Griffin, Harry M.	Windsor
Hannen, L.M.	Richmond
Hardy, Raymond W.	Virginia Beach
Herring, Carl	Suffolk
Jacobs, Bobby	South Hill
Jones, Michael W.	Portsmouth
King, Jr., Sterling H.	Chesapeake
Kinnard, Read	Richmond
Martin, James	Lynco, W.V.
Martin, Melvin D.	King William Court House
Daniel, Michael J.	Richmond
McDevitt, Joe	Virginia Beach
Moyer, Ray	Pawhattan
Murphy, Daniel L.	Chesapeake
Murray, Fred	Richmond
Parham, Tony W.	Lacrosse
Patterson, Greg	Henderson, N.C.
Pearson, Robert G.	Boykins
Peebles, Ted	Greensboro, N.C.
Ramsey, Timothy L.	Aylett
Rice, Annette	Suffolk
Rice, James	Suffolk
Roberts, L.A.	Richmond
Roberts, William R.	Madison, N.C.
Rogers, Jr. John	Midlothian
Ryland, Temple	Mechanicsville
Savage, Bill L.	Virginia Beach
Sclater, Wayne	Mechanicsville
Smith, Jr., Thomas W.	Woodford
Soechting, Donald	Charlottesville
Tucker, William D.	Manassas Park
Tutwiler, Melton W.	Mechanicsville
Welcher, Cecil E.	Bridgewater
Wilson, Henry H.	Charles City
Whiteford, Craig I.	Virginia Beach
Whorley, Melvin R.	Prince George
Worrell, James M.	Suffolk
Wright, Brian K.	Roanoke
Young, Mahlon R.	Aylett

The Water is Waiting

by William Antozzi, Boating Safety Officer

Early spring is a good time to get boats ready for the boating season while it is still cool enough to get the work done without sweat.

Boat operators should make sure that the fuel tanks are full. If they had gasoline stored in them all winter and water is found in the tanks, it may be necessary to add conditioner. Filter-separators should be drained and cleaned and the fuel pump bowls and strainers also need to be cleaned. Gaskets should be checked and the backfire-flame arrestor screens must be cleaned. The entire fuel system must be inspected for leaks. It is also necessary to check all fluid levels such as fuel, engine and gear oil, hydraulic and transmission fluid, engine coolant and battery water.

Ignition systems need a going-over. Battery terminals should be disconnected and cleaned and batteries charged, if necessary. Coils and distributors need a cleaning and light oil spray. It is a good time to remove spark plugs, spray their bases and threads with oil, clean threads in holes, and replace plugs as needed. Spark plug wires may need inspection and testing for resistance. Cables, terminals, switches, circuit-breakers, gauges, senders and fuses should be cleaned and sprayed with light oil.

The closed cooling systems need some work such as draining, flushing or adding antifreeze. Heat exchangers should be inspected for deposits, strainers cleaned, the "weep-hole" in water pumps cleaned, belt-tension and condition tested, hoses inspected for leaks and cracks, and oil coolers checked for deposits.

Many boats have sacrificial zincs which are eaten away by normal electrolysis, a measure designed to prevent destruction of other exposed metal parts. If the zincs are half gone, they should be replaced. Neglect of the zincs could result in severe damage. Some engines have zincs to protect copper coils in the cooling system. They may be hard to find, but the engine manual will show the location. Boats with cable steering need cable inspection and lubrication. Hydraulic steering fluid wells need to be filled, the cylinder rods need lubrication and lines and fittings should be checked. Tilt-trim controls need similar attention.

Outboard engines and stern-drives need appropriate general attention as indicated above, and in addition, the lower unit requires draining and oil replacement, propeller shaft lubrication and possible cotter-pin replacement. If starter cords are used, replacement may be necessary. Mounting brackets, clamps and locks securing outboards to transoms may need to be tightened. Boat trailers need attention to tires, wheel bearings, lighting systems, and brakes.

All boaters with vessels which have fuel tank shutoff valves must remember to open the valves so fuel can get from the gas tanks to the carburetors. If the engines suck in water for cooling, seacocks must be opened to permit water to flow into the intake hose. If boats are equipped with windshield wipers, they should be activated and wiper-blades replaced if necessary. All dirt and debris should be removed from boats and kept out all season. Freshwater (drinking water) systems require any draincocks to be closed, systems filled with fresh water and all faucets opened so that water can be pumped out. That procedure will eliminate sediment and most antifreeze which may have been used. The water tanks are then refilled with fresh water.

Boats with inboard engines and a through-hull propeller shafts have stuffing boxes, which need repacking on a regular basis. Now is the time to take care of that little chore, before the boat begins to take on water.

Most boaters will want to do a general boat cleaning job and will assemble the necessary rags, brushes, mops, cleansers and polishes. Some cleansers can be harmful if they are used on a surface for which they were not designed. A solvent for greasy mechanical parts could blister paint or dull the gelcoat finish. Abrasive cleaners may be fine or coarse, depending on the job to be done. They should not be used on glossy surfaces unless specifically designed for them. They usually work well on metals and other hard surfaces.

Boaters will want to make sure that boats are seaworthy and now is the time to gather all that safety equipment which was put away last fall and get it back on board where it will do some good. While putting it back, it must be checked over to make certain that it is still functional. For example, personal flotation devices must be inspected to make sure the fabric hasn't rotted. Those with vinyl linings should be checked to insure that the vinyl has not been punctured. Emergency or distress signal equipment, lines, bilge pumps, first aid kits and fire extinguishers must be checked to see if everything works. Lights, horns and whistles must be tried. An important action is to replace drainplugs in hulls.

Get ready early and have fun this year. □

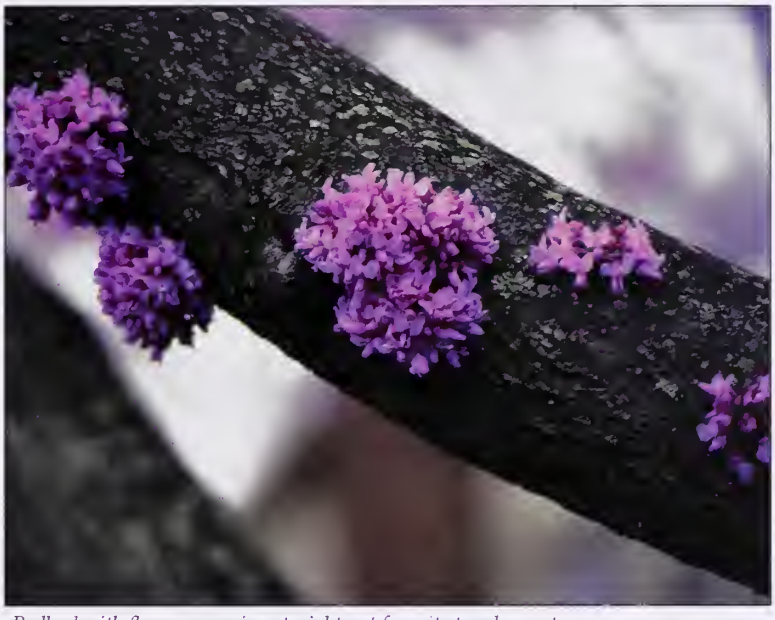
Redbud

by Nancy Hugo

There's a curve in the road near Howardsville, Virginia where I look forward to seeing redbuds bloom as much as fishermen look forward to shad running in early spring. Along the roadbanks hugging my redbud curve, the understory of the woods is so filled with the flower-laden branches of these trees, it looks as if a pink cloud has settled in the woods.

Maybe it's because we Virginians are so enamoured of the dogwood that we often overlook the redbud, but the redbud is one of our most beautiful native trees. In early spring the branches of the eastern redbud, *Cercis canadensis*, are lined with clusters of tiny pea-like purplish pink flowers. Blooming before the trees leaf out, these flowers, along with the flowers of red maples and willows, provide one of the earliest sources of nectar for bees. Although most people feast on them only with their eyes, redbud flowers also provide food for human consumption; some people eat them as a salad, and I've heard they can be prepared fried.

Redbuds typically grow in the understory of hardwood forests, in rich bottomlands, along forested slopes, and along streambanks. The trees are usually small, about 15-40 feet tall, but I remember encountering one huge redbud in a Hanover County backyard that held a treehouse as big as a small apartment. That tree, which had a trunk over 15" in diameter, was the first one I'd ever seen with flowers growing straight out of the trunk. At the time I thought I'd encountered a genetic freak, but I've since learned that it's not unusual for redbuds with trunks over 6" in diameter to exhibit this trait.



Redbud with flowers growing straight out from its trunk, a not uncommon occurence; photo by Nancy Hugo.

Growing in the open, redbuds typically have rounded or flat-topped crowns and straight trunks that separate into several branches a short distance off the ground (perfect for tree houses). In the woods, they usually have a more upright habit.

"Out of gratitude for its spring display, we can forgive the redbud its mediocre performance the rest of the year," one observer of redbuds wrote, but spring blooms aren't the redbuds only claim to fame. There's beauty in the redbud's heart-shaped leaves, and there's beauty in the yellow color these leaves turn in the fall. Even the seed pods of the redbud are interesting. They're flat bean-like pods about 3" long, and they sometimes stay on the tree into early winter. I've read that birds often open them for their small, oblong flattened seeds, but I've never seen that myself.

The redbud also brings to our woods an interesting legend. Legend has it that a Eurasian cousin of our redbud, *Cercis siliquastrum*, was the tree on which Judas Iscariot hanged himself after betraying Christ. Prior to that, according to legend, the tree's flowers were white; it was Judas's shame or blood that turned the flowers of the redbud, also called Judas tree, red.

According to wildlife gardener John Dennis, the redbud is one of the few small trees other than a dogwood or a hawthorne he'd consider adding to a backyard habitat where space is limited. Apart from its physical beauty, its relatively small size, and its appeal to bees, the redbud's assets include the fact that it blooms young, grows relatively fast, and is easy to grow. I have two in my backyard that I love, but if truth be told, I think you need a thousand redbuds to make them show up the way they should—like pink clouds hanging in the woods. □

Freshwater Tigers

by Spike Knuth

To some people they are "jacks" or "jackfish." To others they are known as "snakes." They are a family of fish called the pikes. The pikes are a voracious and highly carnivorous species of fish—freshwater tigers—typified by their long snouts filled with razor-sharp teeth; long, streamlined bodies and a certain ferocity when they feed.

The only native members of the pike family in Virginia are the little redfin pickerel, the chain pickerel, and the muskellunge in the New River and the Clinch and Holston Rivers. Since the late 60s and early 70s, the Fish Division of the Virginia Department of Game and Inland Fisheries has established the muskellunge in a number of reservoirs, as well as the northern pike, the other member of the pike family. Additionally, they have cross-bred female musky eggs with northern pike sperm to produce the hybrid tiger musky—a fast growing, shorter and stockier fish.

The best way to identify the various pikes is to check the scale covering on the cheeks and gill covers. The little redfin pickerel averages seven to 10 inches in length—rarely up to 15 inches. It has red-orange fins, bar markings on its sides, with both gill covers and cheeks fully scaled.

The most common of our pikes, the chain pickerel, is so named for the chain-like markings on its sides. It also has a black vertical mark under its eye, and its fins are normally unmarked. It too, has fully-scaled cheeks and gill covers. Young chain pickerels resemble adult redfins. Chain pickerels average 1-1/2 to 3 pounds, going up to six to nine pounds.

The northern is darker with bean-shaped, light spots on its side, and mottled fins and tail. The young may be marked like a young chain pickerel, but the scales will help properly identify it. The cheek is fully scaled but the gill cover is only half scaled.

The muskellunge has diagonal, broken bars fading to spots, and it has faint spots on its fins and tail. It tends to have a heavier lower jaw as well, but again, the scales tell the story. Only the top portion of the cheek and gill cover have scales.

The tiger musky has tiger-like, solid and faint diagonal bars on its sides, yet the young tigers may resemble young northern pikes in color. While only the upper portions of both cheek and gill cover are scaled, there are a few scattered scales on the lower cheek.

Of all the pike family, the pickerels seem to prefer shallower, weedier water the most. Since the redfin is apt to be caught mainly in streams by accident, and is not sought after, not a whole lot is known about it. It inhabits similar habitats as the chain pickerel, especially smaller streams and rivers.

The chain pickerel, often called "chainsides," is found mainly in the Eastern United States from New England to the Gulf States. They prefer rivers and streams and are found in numerous reservoirs as well.

Ol' chainsides feeds mainly on small fishes but will occasionally try to swallow a "brother" his own size, along with insects, worms, frogs and small mammals. Pickerel, at times, are ambushers, waiting in the weeds for their prey to swim by. During cooler periods they will roam and search, although normally not too far. They are territorial and stick to a relatively small area.

The northern pike's native range stretches through Canada, the Great Lakes region of the United States, northern Europe and Asia, as far north as Finland and Siberia, and in the British Isles. As with the pickerel, the pike has large, toothed jaws. Their long canine teeth are arranged in rows, plus rows of teeth are located on their tongue and palate. These teeth angle backward, making it all but impossible for prey to escape. Pikes are gluttonous eaters when feeding, eating mainly other fish, but eating just about anything that fits into their mouths.

Like chain pickerel, northern pike can be streak feeders. They are most active in the colder months. They are found in the shallows in spring and fall, over and around weed beds or bars. In summer they seek out deeper waters near dropoffs but seldom below 35 feet.

The musky or muskellunge is the monster of the pike family. In Canada it's called Maskinonge which comes from a Cree Indian word, "Mashk," meaning "deformed," and "kinonge" meaning "pike." So, literally, it is a "deformed pike," undoubtedly in reference to its often crooked, alligator-like snout and evil look.

The muskellunge is native only to North America from the St. Lawrence drainages of New York and Quebec, west across Ontario to the Great Lakes Region and Upper Mississippi Basin. In Virginia it may have been native to the New River and the Clinch River all of which run into the Mississippi.

In its natural range, muskies tend to be loners, preferring cool, clear, weedy waters of lakes and the quiet reaches of rivers. As adults, muskies feed mainly on other fishes, especially soft-rayed fishes such as suckers or carp.

From the little redfin to the Northern pike to the giant muskellunge, the "freshwater tigers"—the pike family—provide some of the most exciting fishing action possible.

Those Slippery Salamanders

by Lynda Richardson

My eyes nearly burst from my head when I plopped a rubber-covered foot into the water. Icy cold grabbed an ankle and streaked up baggy chest waders. You would have thought the nice spring weather had warmed the waters up a bit by now.

We were on a mission. With large, mesh dip nets in hand, a group of us waded our way through the chilly waters of the little mountain pond. Probing here and there, and then pulling up the nets for a look, we moved slowly, carefully checking for our quarry. Soon, the call came out and we waded over to the captor's net. Amongst a muck of leaves shone a bright cluster of yellow polka dots. A closer look revealed eight inches of slippery black with four legs. A mature male spotted salamander had been caught in its spring breeding pond.

Salamanders are often overlooked by the nature photographer. Spending their lives crawling around under leaf litter, rotting logs or cruising small ponds, they aren't attention getters. As a matter of fact, their nature of hiding makes them a little difficult to photograph. But, dressed in an array of striking colors and patterns, these animals can offer a variety of challenging photographic opportunities if given the chance. All you need is a macro lens, a tripod, and LOTS of patience.

Once you capture a salamander, be careful to handle it with moistened hands. Salamanders have delicate skin which can easily be damaged and make them very susceptible to bacteria, fungus or diseases. Temporarily store your slippery subject in a clear plastic bag with moist leaves for safe keeping. Then, take a moment to study it.

What color is your salamander? What background would best show off its delicate or bold coloration? What is a natural setting for this subject? Once you have chosen a background, decide from what angle you'd like to photograph your model. Do you want a side view or looking down from the top? Do you want a close-up of its face or do you want a full body shot?

Before removing your subject from the plastic bag for its modeling debut, pick a location and get your camera gear set up and ready to go. Carefully measure the light and work out your exposures in relation to the extension of your macro lens. Decide if you need to add fill flash or if a fill card will do. Make sure everything is tested and working properly. Then, prepare for battle.

Depending on the temperature of the day and the species you are photographing, placing a salamander within camera range is a test of your commitment to nature photography. Salamanders don't like to be out in the open and they insist on running for cover every chance they get. You can almost hear them scream "RETREAT!" as they dash out of your picture.

I've tried placing subjects in ice chests or coolers to slow down their metabolism. But, if that works at all, the animal usually darkens in color, making it appear unnatural. Sometimes, positioning a leaf partially over the little amphibian will calm it, giving you some time to work. Even covering the salamander with a hand and then moving it away quickly with a prefocused camera ready to fire will give you a shot or two. But never drop your guard for even a few seconds. Your subject will probably continue to make desperate escape attempts, so you need to prepare ahead of time with the extra (wet) hands of an assistant or by using some type of barrier around your feisty subject.

After you've finished with your model, make sure you release it back to the same spot you'd caught it. Salamanders have territories like many other animals, so it's important to place your subject back into its home range. As I held the large spotted salamander in my hand for the final time, I can't say that I was looking forward to wading back into that icy pond. But just as I started in, my slippery subject solved the problem for me. He made a run for it. □

This spotted salamander (Ambystoma maculatum) was pretty active once removed from his environment. But, fortunately, he did pause long enough for me to get this nice head shot; photo by Lynda Richardson.

Enjoy This Low Cholesterol Fish Dinner

by Joan Cone

Your body needs cholesterol, but not too much. This waxy substance is found mostly in meat products and helps produce Vitamin D. However, a little cholesterol goes a long way. Too much can bring on clogged arteries and heart disease. That is why the American Heart Association recommends you eat no more than 300 milligrams of cholesterol daily.

Instead of worrying about cholesterol, you could eat more fish. It is low in fat and especially low in saturated fat. Yet fish offers plenty of protein, vitamins and minerals without too much cholesterol. When properly cooked, fish is very tasty. Overcooking dries it out and gives a cardboard texture. Even if you don't enjoy eating fish, try it this way. If you are a seafood lover, you will appreciate this meal even more.

Menu
Herbed Tomato Broth
Crunchy Orange Fish Fillets
Rosemary Potatoes
Cauliflower Garden and Mustard Dill Sauce
Strawberry Angel Food

Herbed Tomato Broth

1 can (10-1/2 ounces) condensed beef broth
1 can (10-3/4 ounces) condensed tomato soup
1 soup can water
1/4 teaspoon marjoram
1/4 teaspoon thyme

Combine soups, water and herbs. Heat to boiling. Reduce heat and simmer for 2 minutes. Ladle into bowls. Makes 5 or 6 servings. Per serving: Less than 5 mg cholesterol.

***Crunchy Orange Fish Fillets**

Fillets from bass, catfish, walleye, or similar fish can be used in this recipe.

1 pound fish fillets, fresh or frozen, thawed
2 cups Kellogg's Special K cereal, crushed to 3/4 cup
1/2 teaspoon grated orange rind
1/2 teaspoon salt
1/4 teaspoon dried tarragon leaves
1/8 teaspoon pepper
1/4 cup chopped parsley
1/4 cup reduced-calorie margarine
2 oranges, thinly sliced

Pat fish fillets with paper towel; set aside. Place Special K cereal in shallow dish or pan. Stir in orange rind, salt, tarragon, pepper and chopped parsley. Melt margarine in medium-size frypan. Dip fish fillets in margarine. Coat with cereal mixture. Place in single layer in foil-lined shallow baking pan. Bake at 375 degrees about 25 minutes or until fish flakes easily with fork. Do not cover or turn fish while baking. Serve with orange slices. Makes 4 servings. Per serving: 25 mg cholesterol. *Recipe from *Favorite Recipes Cookbook*, 1991, Kellogg Company.

Rosemary Potatoes

1 pound small new potatoes
3 cups water
1 small onion, quartered
1 rib celery, cut in half
1 carrot, cut into 3 pieces
1 tablespoon olive oil
1 teaspoon crushed rosemary leaves
1/2 cup chopped green onions

In a large pot over high heat, combine potatoes, water, onion, celery and carrot. Bring to a boil; reduce heat, cover and cook for 30 minutes. Drain the potatoes, discarding the other vegetables. In a skillet over high heat, heat the olive oil until very hot. Add the potatoes, rosemary and green onions and saute´ for 5 minutes, shaking the skillet constantly. Serve hot. Makes 4 servings. Per serving: O mg cholesterol.

***Cauliflower Garden and Mustard Dill Sauce**
(For Microwave)

1 cauliflower
1 teaspoon instant chicken bouillon
1/4 teaspoon onion powder
3 tablespoons hot water
2 cups broccoli florettes and thinly sliced stalks
2 cups thinly sliced carrots
2 tablespoons chopped red bell pepper

Mustard Dill Sauce

Combine these ingredients:
1/2 cup reduced fat mayonnaise
1 tablespoon prepared mustard
1/4 teaspoon dried dill weed

Remove core from cauliflower. Place cauliflower in a 9-inch microwave casserole dish. Dissolve bouillon and onion powder in hot water. Spoon over cauliflower. Microwave on HIGH 5 minutes, rotating once. Place broccoli and carrots closely around cauliflower. Microwave, covered, on HIGH 4 minutes, rotating once. Let stand covered for 2 minutes. Spoon sauce over vegetables. Garnish with bell pepper. Makes 8 servings.

*Recipe from Dole Food Company. Per serving: 6 mg cholesterol.

Strawberry Angel Food

1 package (3 ounces) strawberry gelatin
1-1/4 cups boiling water
1 package (10 ounces) frozen sliced strawberries, thawed
1 tablespoon sugar
Pinch salt
1 container (8 ounces) non-dairy whipped topping
1/2 of a l0-inch angel food cake, cut into pieces

Dissolve gelatin in 1-1/4 cups boiling water. Stir in thawed strawberries, sugar and salt. Cool mixture until it begins to thicken. Fold in whipped topping. Cover the bottom of a 9-inch square pan with half of the cake. Pour half of the strawberry/gelatin mixture over the cake. Add second half of the cake and then cover with remainder of gelatin mixture. Refrigerate for at least 4 hours or longer before serving. Makes 9 servings. Per serving: O mg cholesterol. □

Help Us Save Them

Loggerhead sea turtle; photo by Lynda Richardson.

This year, when you fill out your state income tax return form, remember wildlife.

The responsibility for the protection and conservation of wildlife in Virginia lies with us all—you and me—and you can do your share by checking off a donation to Virginia's Nongame and Endangered Species Wildlife Program on your state income tax return form.

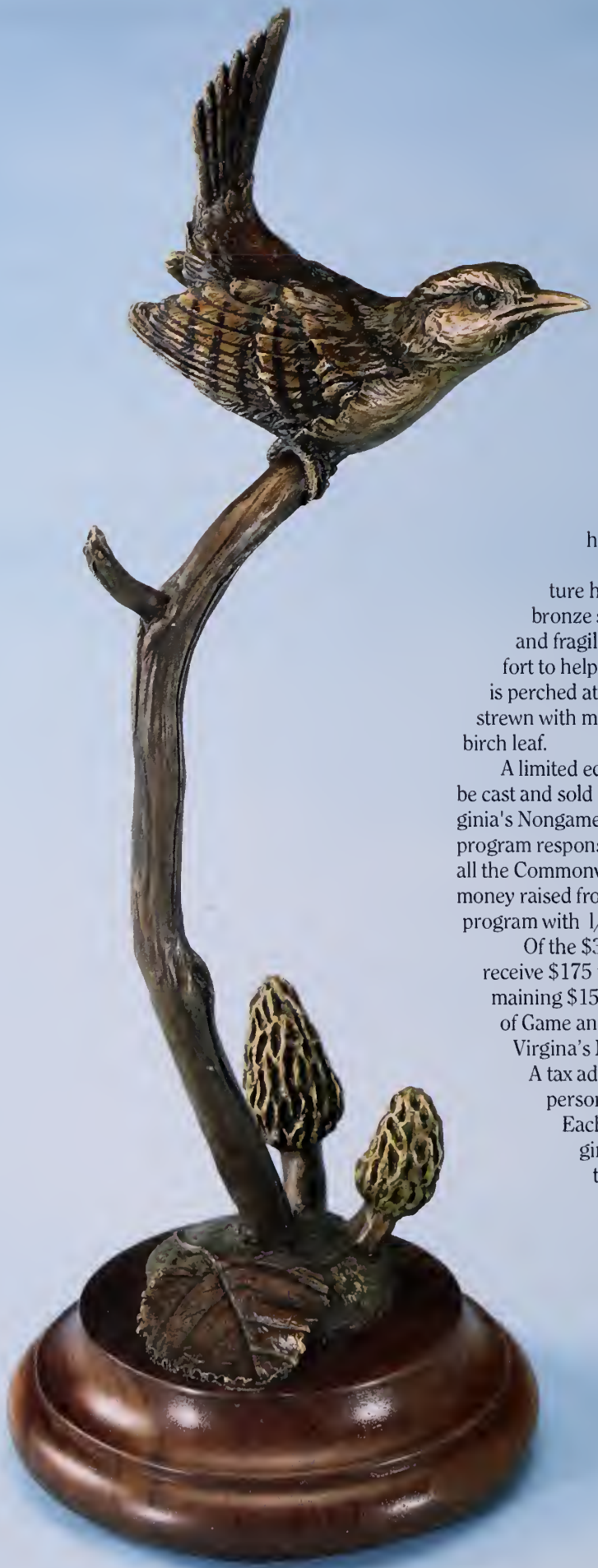
Developed and administered by the Virginia Department of Game and Inland Fisheries, the designated stewards of the Commonwealth's fish and wildlife, Virginia's Nongame and Endangered Species Program is designed to monitor, recover, and manage the good health of all wildlife—from the tiny endangered tiger salamander to the rare northern flying squirrel. The program funds research and recovery programs that find out where rare species are, how fragile their existence is, and propose ways to establish and protect populations.

This year, check off a contribution to help the wild lives we cherish, or send a tax-deductible check to: Virginia Nongame Wildlife Fund—VW, Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104.

Resource Guide Available on Virginia's Endangered Species

Order the only comprehensive resource guide on Virginia's Endangered Species for $32.95 (softcover) or $59.95 (hardcover). This 675-page guide identifies and describes more than 250 rare and endangered plants and animals in Virginia. Produced by the Virginia Department of Game and Inland Fisheries and other state natural resource agencies, this book documents the latest scientific information on Virginia's endangered species, information which is available in no other publication. Send your check plus 4.5 percent sales tax and $2.50 shipping and handling charges to: McDonald and Woodward Publishing Company, P.O. Box 10308, Blacksburg, VA 24062-0308. Phone: (703) 951-9465.

To order a **Virginia's Endangered Species poster** of the illustration featured left, please write a check for $8 made payable to: Treasurer of Virginia, and send to: VA Endangered Species Poster Offer, Attn: Diane Davis, VDGIF, P.O. Box 11104, Richmond, VA 23230-1104.



Buy one for a Song

The cheerful *chip, chip, chip, de-da-a, te-dee* of the Bewick's wren is seldom heard in the mountains of Virginia anymore. Declared endangered in Virginia, the Bewick's wren represents just one of many species of wildlife whose survival is hanging by a thread in our state today.

Thus, David Turner of Turner Sculpture has designed this delicate 12-inch high bronze sculpture to draw attention to the beauty and fragility of the Commowealth's wildlife in an effort to help save them. The enchanting Bewick's wren is perched atop a limb that pokes up from a forest floor strewn with morels and single rare Virginia round-leaf birch leaf.

A limited edition of 200 of these bronze sculptures will be cast and sold by Turner Sculpture, solely to benefit Virginia's Nongame and Endangered Species Program, the program responsible for the management and protection of all the Commonwealth's rare and endangered wildlife. The money raised from the sale of this sculpture will provide the program with 1/10th of its present operating budget.

Of the $325 purchase price, Turner Sculpture will receive $175 to cover their production costs. The remaining $150 will be sent to the Virginia Department of Game and Inland Fisheries as your contribution to Virgina's Nongame and Endangered Species Fund. A tax advisor should be consulted regarding the personal tax deductibility of this contribution. Each piece sold will include a certificate of origin and a letter confirming your contribution to the future of Virginia's wildlife.

Order your sculpture by sending your $325 check made out to Turner Sculpture to: Turner Sculpture, Box 128, Onley, VA 23418. For credit card orders, call : (804) 787-2818.

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